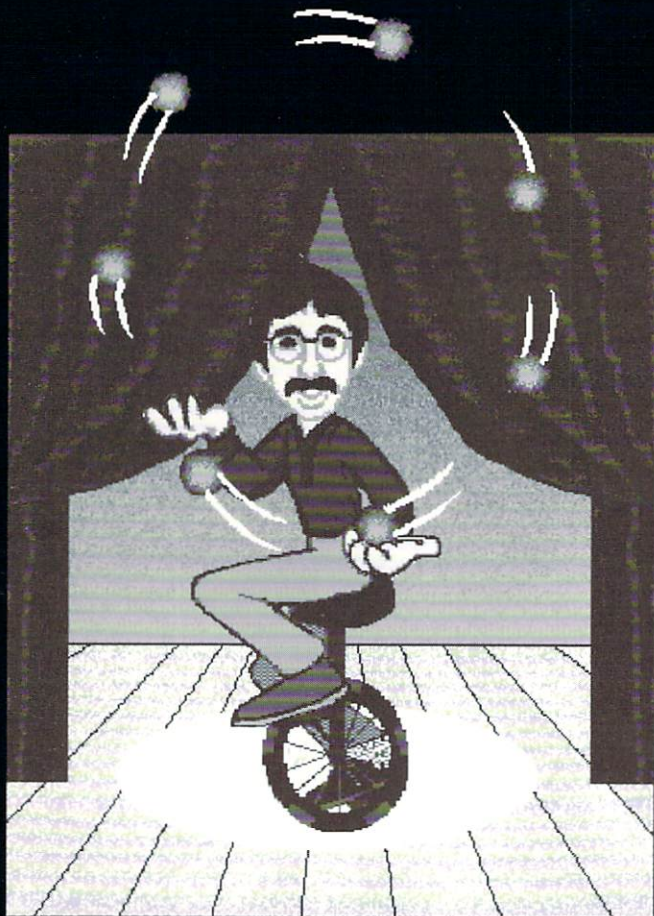


PAINT[®] III

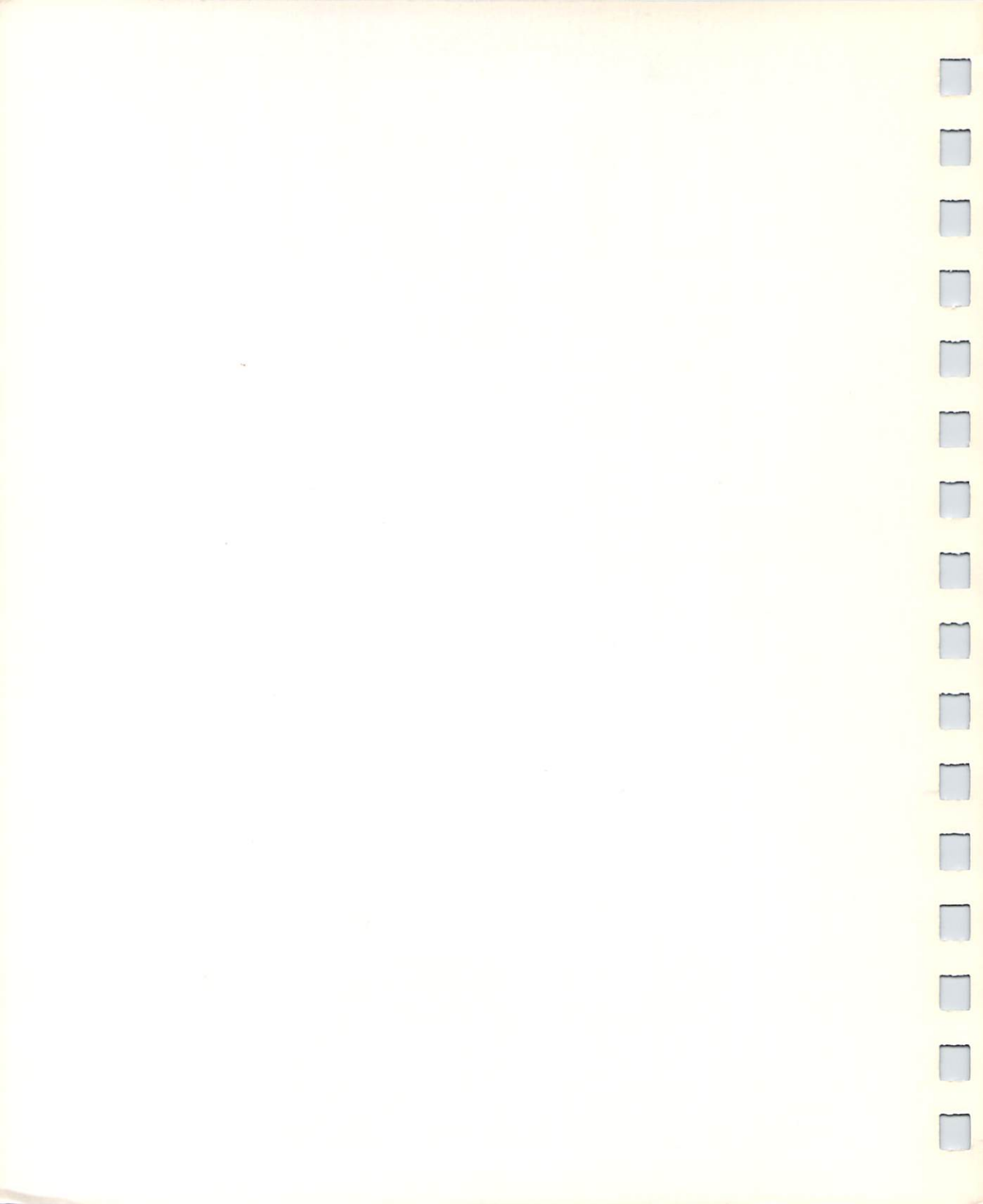
DELUXE



MANUAL
FOR YOUR AMIGA



ELECTRONIC ARTS[®]
DELUXE CREATIVITY SERIES



*P***DELUXE***PAINT[®] III*

MANUAL

DAN SILVA

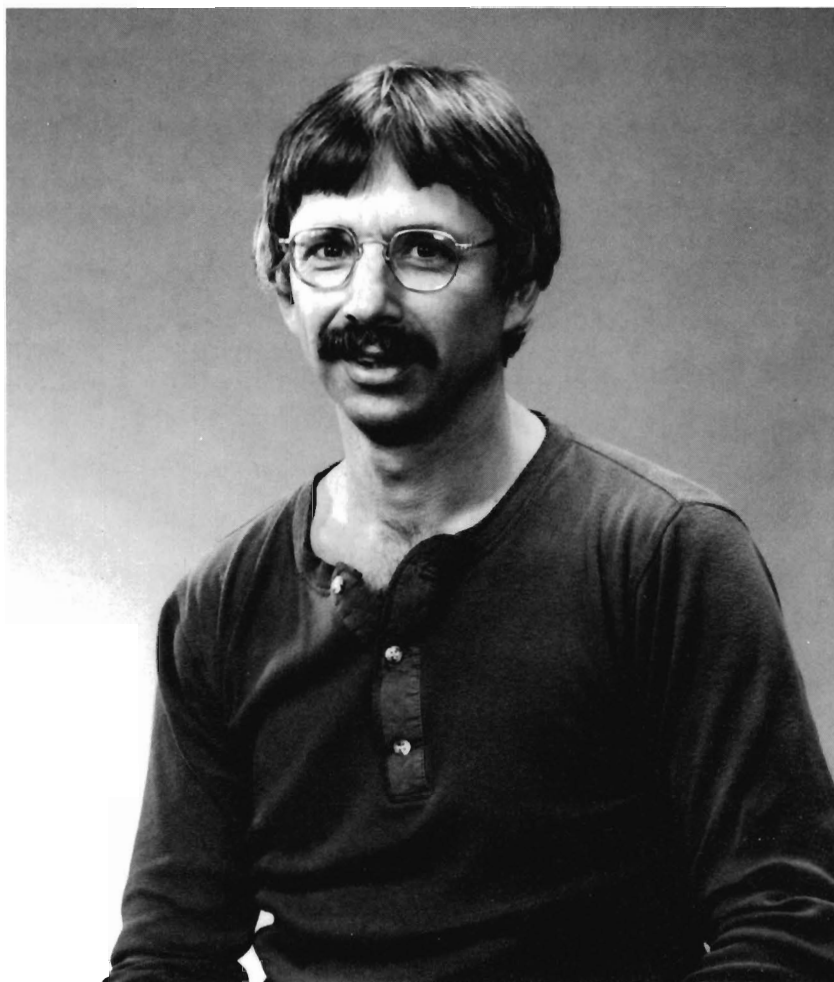
Dan Silva's interest in computers and computer graphics dates back to the early sixties, when he was working towards his Master's degree in Mechanical Engineering at Stanford University. At that time he was using a computer to synthesize kinematic linkages, such as robot arms and universal joints. Like most computer programmers during that time, Dan was using the computer to avoid computational tedium, with no inkling that it would one day become a tool for self-expression and creativity.

He began to realize the computer's potential for creative self-expression during his four years with Informatics, a contractor to the NASA Ames laboratory. During his spare time there, Dan wrote an interactive language for displaying mathematical equations as graphic images. Like many computer programming pioneers, Dan did his most interesting work after hours, when the computers would otherwise have been sitting idle.

It was in 1978, when he started working for Xerox (doing user interface design for the Xerox Star system), that Dan realized he could make a living having fun with computers. There followed a year at the newly formed computer group at Lucasfilm designing a video editor, and then back to Xerox, where he worked with Bill Bowman creating a next generation bitmap editor. This effort produced Doodle, a Black and White paint program running on the Xerox Dandelion computer.

By the time Dan joined Electronic Arts in 1983, he had a clear idea of how the ideal paint program should behave. With this in mind, he started work on Prism, a paint program that was to be an in-house tool for software development. Needless to say, as Prism grew, so did its marketplace potential, especially with the advent of Commodore's Amiga and its thirst for powerful software. Prism eventually became **DeluxePaint**, which was released in November 1985, and it became an instant success.

But Dan thought a good paint program should do more for users and he started improving DeluxePaint almost immediately. The result was DeluxePaint II, published in 1986, which many of you know simply as the best paint program available for the Amiga. And as fine a program



as that is, Dan still wasn't satisfied. Big surprise, right? He could paint, but the paintings didn't move. Dan's lifelong fascination with animation became the motivating force behind DeluxePaint III.

One night's hacking with DeluxePaint II, trying to achieve some animation effects, turned into six months of nonstop programming. Is DeluxePaint IV on the horizon? We don't know but we'll see what new ideas Dan's been thinking of when he returns from his well-deserved vacation.



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DeluxePaint III is a graphics tool that can help you create works of art with an ease and precision that you may never have thought possible. After spending a little time with this manual, you'll be able to use the program to create colorful graphics in a fraction of the time it would take using more traditional techniques. You'll learn how to create perspective effects, how to create and save your own custom brushes, how to mix your own color palette from a universe of 4096 possible colors, and how to create effective on-screen animations, to name just a few of DeluxePaint III's powerful features.

You don't have to read every word of this manual to become proficient with **DeluxePaint III**. We've organized the information so you can quickly learn what you need to use the program, in a manner best suited to your style and experience. For example, you can learn by working through the painting tutorials in Chapter Six, or you can dive right into the program and use Chapter Nine, the Reference section, to answer any questions that might arise. You should read "About This Manual" at the end of this Introduction, so you'll know where to find the information you want. After that, feel free to use the manual as you see fit. Remember, however, that the more you read, the more you'll get out of this exciting program. Whatever approach you take, we welcome you to the world of computer-generated art.

WHAT CAN I DO WITH COMPUTER GRAPHICS?

If you're new to computer graphics, you may wonder what advantages **DeluxePaint III** can provide over traditional media. It's a fair question, and here's the answer. To begin with, **DeluxePaint III** is not a substitute for every kind of graphic medium. There'll always be a place for fine oils, watercolors, marble sculpture, and drafting tools for that matter. What **DeluxePaint III** can do is help you create prototypes of your designs more quickly and easily than any traditional medium, allowing you to move from inspiration to execution in minutes instead of hours. Indeed, if Leonardo Da Vinci were alive today, he would probably be using **DeluxePaint III** to design his masterworks. And his reasons for using the program would be the same as yours.



First, **DeluxePaint III** lets you do things that would be difficult, if not impossible, using traditional methods. For example, you can pick up any part of a picture and rotate it or flip it to create its mirror image. You can shrink or expand an image on the screen until it is just the right size, and then place it where it looks just right. Or you can create a mathematically precise tonal range for your colors just by specifying the beginning and ending shades and the number of steps in between.

Second, **DeluxePaint III** is just like a word processor for graphic art. You can move images from one part of the picture to another, or you can copy an image and paste it anywhere in your picture. You can create a forest of leaves just by drawing a single leaf and pasting it throughout your picture, or you can create clumps of leaves and paste *those* throughout your picture. In addition, you can make global changes to your artwork with ease. For example, if you decide that the blue border around a picture should be red, or that some flesh tones should contain a darker shade of tan, you can make the changes for the entire picture at one time, without having to do it element by element. Having created an element once, you don't need to create it a second time, if all you want to do is change one or more of its characteristics.

Third, because you can save all your work on disk, you don't have to create everything from scratch each time you work on a design. And this lets you build up a library of images or clip art to use in future designs. Because you can save versions of your picture as you go, you can always return to an earlier state of a design and pick it up from there, if you like. Finally, because you can print as many originals of a picture as you need, or make unlimited copies of your data disks with no degradation from one generation to the next, there need never be just one original of a picture to lose or spill coffee on.

Because of **DeluxePaint III**'s ability to take you beyond traditional graphic media, you'll begin developing a "new way of seeing," a new approach to graphic art. You'll save yourself hours of tedium by finding new and more efficient ways to create old effects. We will explore some of these techniques in Chapter Three, but after a little experience you'll probably come up with your own. **DeluxePaint III** is the kind of software that invites experimentation, so feel free to play around with its various tools and effects. Remember, you can't hurt anything by experimenting with the software, and you may even discover an artistic side you never knew you had.

ABOUT THIS MANUAL

If you are new to computers and computer graphics, we suggest you begin with Chapter Two, "Getting Started". You'll learn how to start **DeluxePaint III**, how to load your pictures, and how to quit the program. You'll also learn about some fundamental **DeluxePaint III** tools and techniques through simple exercises. If you are a beginning computer graphics artist, you'll get the most out of the program by starting there, and then moving to Chapter Three, "A Guided Tour".

If you already have some experience with graphics programs and are familiar with your Amiga, you may want to begin with Chapter Four, "The Elements," which describes each of **DeluxePaint III**'s elements and explains how they interrelate. Each of the six elements (the Brushes, the Screen, the Palette, the Tools, the Painting Modes, and Text) work together to give you power and versatility. Here you'll learn how to create your own brushes, how to mix your own palette from a universe of 4096 colors, how to customize tools, and how to mix text and graphics.

No matter what your level of expertise, Chapter Six, "Painting Tutorials", will help you understand some of **DeluxePaint III**'s more complex features. These tutorials, designed with the assistance of professional graphic artists, concentrate on the more advanced uses of the program, such as the use of stencils (or *friskets* in the parlance of airbrush artists), color mixing, perspective, and color cycling to create animation effects. The time you invest working through these tutorials will pay off with interest as you become a proficient **DeluxePaint** artist.

If you are already familiar with previous versions of **DeluxePaint**, Chapter One "What's New" is for you. That's where we describe the major changes and improvements in the program. For those of you who prefer to jump straight in without reading the documentation, Chapter Nine, the Reference Section can answer any questions you may have. Chapter Nine documents every one of **DeluxePaint**'s features by menu item, keyboard command, and tool icon. If you need a quick reference to any of **DeluxePaint III**'s features, you can find it there.

Finally, we have included a set of appendices to provide you with background information about the program. Appendix A provides information about memory usage and management; Appendix B sup-



INTRODUCTION

plies a complete list of keyboard equivalents for DeluxePaint III commands; and Appendix C offers a brief description of how to use the program's Player utility with your animations.





NOTES



If you are already familiar with DeluxePaint II, we doubt that you want to spend a lot of time reading through this manual, but there are some sections of the manual you won't want to miss. This chapter briefly describes the major additions and improvements to the software and directs you to the areas where you'll find more information. For the straight-forward changes, the best place to find information quickly is in the Reference section.

THE MAJOR ADDITIONS

These are the big changes in either the software or the manual that every user should spend some time with.

ANIMATION

Of course, the big news is animation. DeluxePaint III gives you the ability to paint on multiple frames and then flip the frames to play the animation. You can create animations by:

- ☐ Painting each frame the old fashioned way.
- ☐ Painting your brush through three dimensional space with the Move requester.
- ☐ Painting while the frames flip — we call this animpainting.

You can even pick up an animation as a brush and paint with it! Your brush works like a little animation, so you can combine many little animations into big ones with amazing ease. We've included an example "aquarium construction set" so you can try it out right away.

Where to find more: You'll find information about DeluxePaint III's animation features in three chapters: Animation Basics, Animation Effects, and Reference. We strongly recommend that all users work through the two animation chapters for a step-by-step explanation of the features.

EXTRA HALFBRITE

DeluxePaint III supports Extra Halfbrite display mode and offers a new painting mode and two Fill Types. The painting mode makes it easy to paint shadows and highlights in Extra Halfbrite. The Fill Types let you



paint shapes that shadow or highlight and create gradient fills using both the standard colors and their halfbrite equivalents.

If your Amiga supports Extra Halfbrite, you should definitely check it out. You'll find information about Extra Halfbrite in the Reference and scattered through the manual in discussions of screen formats and painting modes.

OVERSCAN PAINTING

DeluxePaint III goes beyond giving you a page that is the right size for an overscan image. It gives you the ability to paint on an Overscan screen! You'll love it if you do video work. Just select Overscan in the Choose Screen Format requester. You'll find some additional information in the Reference and scattered through the manual in discussions of screen formats.

MORE BRUSH MODES AND FILL TYPES

There are two new brush modes: Tint and Extra Halfbrite. There are also four new Fill Types: Tint, Brush, Wrap, and Halfbrite.

Finally, there's a new way to fill an area. You can now fill outward to the background color by holding down the **Alt** key when you click with the Fill tool. Here's how it works: change your background color to the color you want as the boundary for your fill; select the Fill tool; hold down the **Alt** key; and click inside the area you want to fill. This is especially useful for filling an area of many colors, such as a gradient.

You'll find information about all of these features in the Reference and scattered throughout the manual. You probably don't need to read about them — give them a try.

FILLED FREEHAND SHAPE TOOL

The Continuous Freehand tool is now divided into the Continuous Freehand tool and the Filled Freehand Shape tool. You don't need to read about this one, just use it.

FILLED AND OUTLINED SHAPES

You can now automatically paint filled and outlined shapes by holding down the **Alt** key when you click on a Shape tool. DeluxePaint paints

your filled shape using the current settings in the Fill Type requester and then traces the shape with your current brush using the settings in the Spacing requester.

IMPROVED PERSPECTIVE DOCUMENTATION

Now that DeluxePaint III lets you animate in three dimensions, power users will want to use Perspective more than ever. We've changed the Perspective tutorial and added a chapter, *Using Perspective*, to help you get started with this important feature. There is also a new key for moving in the third dimension. You'll learn about it in the new chapter, in the new tutorial, and in the Reference.

IMPROVED PRINTING CONTROLS

We've added some extra options for printing that we think some of our users will find useful. See the Reference for more.

ASSORTED OTHER CHANGES

This is a list of changes you should know about, but probably don't need to read about beyond this listing. If you do want to know more, you'll find information about these in the Reference.

FLIPPING PICTURES

You can flip your entire picture horizontally or vertically without having to pick it up as a brush. See Flip in the Picture menu.

MORE "ABOUT" INFO

The About box now contains more information about your current memory state.

AUTOMATIC OUTLINES

The Brush menu contains an Edge option with commands to add a one pixel outline to your brush or remove a one pixel outline.



BRUSH HANDLES

You can now place the brush handle in any corner or offset from the brush in any direction. Take a look at the Handle option in the Brush menu.

CHOOSE FONT REQUESTER REPLACED THE FONT MENU

The Font menu is gone and now a simple right mouse button click on the Text tool brings up a Choose Font requester. The requester lets you choose fonts, sizes, and styles, and lets you see what the font looks like before you use it. If you choose a color font, DeluxePaint let's you load the color font palette. Better yet, you can access fonts in a different drawer or disk without going through all that loading or assigning nonsense.

STENCILED BRUSHES

In DeluxePaint III, your stencil also affects brush pick-up; the Brush Selection tool picks up only areas that are not locked by the stencil. This feature helps you pick up just the right area with ease, and if you want to pick up everything, you can turn the stencil off while you make your selection.

MORE PREFERENCES

The Preferences menu contains a few more options:

AutoTransp (short for Auto Transparency) helps you pick up a brush from any solid background without picking up the background. If all of the corners of your selection are the same color, that color is the transparent color instead of the background color.

No Icons lets you save files without icons to save space on your disks.

AutoGrid lets you choose whether or not your perspective grid is automatically resized when you select or load a new brush.

CHAPTER TWO: GETTING STARTED





NOTES



This chapter briefly describes the contents of your DeluxePaint package and what computer hardware and software you will need to use DeluxePaint. Then it shows you how to:

- ☐ Organize your disks
- ☐ Install DeluxePaint on a hard drive
- ☐ Start DeluxePaint
- ☐ Open a file
- ☐ Quit the program

SOFTWARE

Your DeluxePaint package contains three disks:

- ☐ The *Program Disk* contains the DeluxePaint III program and Preferences.
- ☐ The *Art Disk* contains images you can use in your work. These images are stored in drawers, labeled according to screen format or contents.
- ☐ The *Animation Disk* contains a few animation files and animbrushes to give you some ideas of what you can do with DeluxePaint III's animation features. It also contains a Player program for playing your animations outside of DeluxePaint III. (You'll find information about the Player in Appendix C). Finally, it contains a ReadMe file.

THE README FILE

Before you do anything else, read the ReadMe file on your Animation disk. This file contains information about the program that was not available before the manual went to press. To read the ReadMe file:

- Double-click on the ReadMe icon.

This opens a text window that, at a minimum, lists the title, version number, and copyright information about the program. If you need help using the ReadMe file, press **h** on the keyboard to see a screen of keyboard commands. To exit the ReadMe file:

- Press **q** on the keyboard.



HARDWARE

To use DeluxePaint you will need an Amiga, at least 1 megabyte of random access memory, a monitor, and extra diskettes for saving your work. Finally, if you intend to print the files you create, you will need a color printer. Consult your *Amiga Users Guide* for information about connecting printers and other peripherals to the Amiga.

- ❖ **Note** If your Amiga has only one disk drive, we recommend that you don't double-click on file icons to start DeluxePaint and load a file. Instead, start DeluxePaint and then load the file by choosing Load from the appropriate menu.

ORGANIZING YOUR DISKS

We assume that you already know how to initialize disks, copy disks, delete files, and move files from one disk to another. If you are not familiar with all of these activities, we suggest you consult your *Amiga Users Guide* before going any further.

Before you use your DeluxePaint disk, you should make one or more working copies of it to reduce the chance of anything happening to the original. Also make sure you have one or more blank initialized disks handy for saving your work.

INSTALLING ON A HARD DISK

If you own a hard drive, you will probably want to install DeluxePaint. The following steps assume that you started the computer with a standard Workbench that has been configured properly to support a hard disk. If you wish to install the program using some other method, feel free to do so.

- Create a Drawer named DeluxePaint on your hard disk.

(Click the Empty Drawer icon to select it. Choose Duplicate from the Workbench menu. In a moment, a new drawer is created called "copy of Empty." Click the "copy of Empty" drawer to select it. Choose Rename from the Workbench menu. Press Del several times to erase the drawer name. Type "DeluxePaint" and press Return. You now have a drawer named DeluxePaint.)

- Insert the DeluxePaint program disk into a disk drive.
- Double-click the program disk icon to view the contents of the disk.
- Click the DeluxePaint icon. Then hold down the **Shift** key and click the other icons. You now have the contents of the program disk selected.
- Hold down the **Shift** key and drag the icons so that the one you are pointing to is directly over the DeluxePaint drawer icon. Release the mouse button. Now the Workbench copies the three programs into your hard disk drawer.
- Replace the program disk with the DeluxePaint art disk. Double-click the art disk icon to view the contents of the disk. Select all of the icons on the art disk just as you did with the program disk. Drag the icons onto the DeluxePaint drawer icon on your hard drive the same way you dragged the program icons above.
- Replace the art disk with the animation disk and drag the icons on the animation disk over to the DeluxePaint drawer just as you dragged the program icons above.

You now have copies of the DeluxePaint program and the art and animation drawers on your hard disk.

POWER UP

When you are ready to begin, just follow these instructions:

- Turn on your computer and monitor. (Amiga 1000 users, start by inserting the Kickstart 1.2 (or later) disk in the internal drive.) When the request for the Workbench disk appears on the screen, insert your working copy of DeluxePaint.

The drive spins for a few seconds, and then the DeluxePaint disk icon appears at the top right-hand corner of the screen.

- Double-click the disk icon (move the pointer onto the icon and press the left mouse button twice in quick succession) to open the disk window.



The disk window opens to reveal icons for the DeluxePaint program (the one that looks like a can of paint) and a number of drawers containing ready-made images.

STARTING DELUXEPAINT

- Double-click the DeluxePaint program icon to start the application.

When you start DeluxePaint, the program presents a *requester* (a window that requires some input from you) inviting you to select a screen format. We'll be looking at some of these options later, but for now note that three of the settings are already highlighted ("Lo-Res," "32" and "Load All"). These are the *default* settings, the ones the program automatically uses unless you specify otherwise.

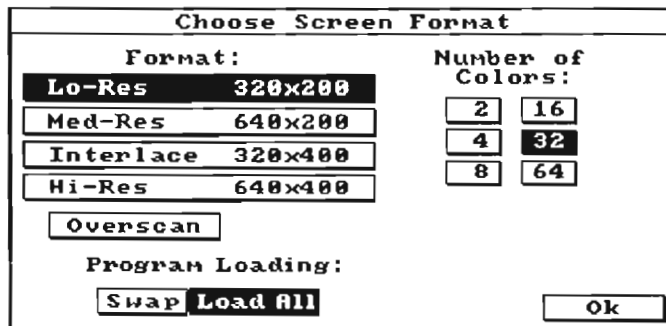


Figure 2.1 Choose Screen Format Requester

- Click OK with the left mouse button to tell DeluxePaint to use the default settings.

This last command brings you to the Painting Screen, with the painting area or page on the left and the Toolbox and Palette on the right (see Figure 2.2).

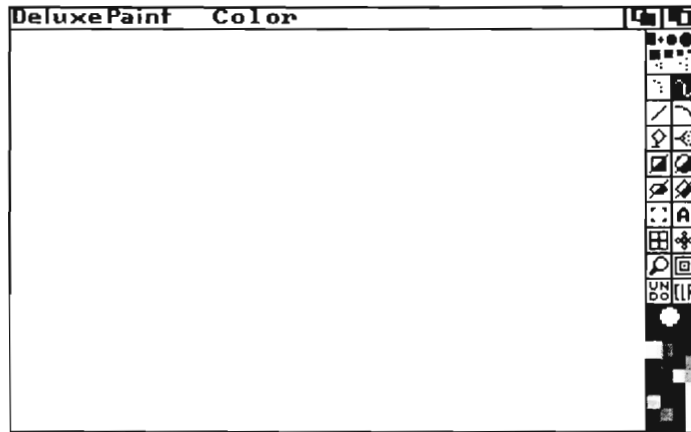


Figure 2.2 *DeluxePaint Screen*

If this is your first time using DeluxePaint, we recommend you work through the next chapter, where you will learn how to use many of DeluxePaint's tools and techniques.

LOADING A PICTURE

Before we leave this chapter, let's see how to load one of the pictures on your disk. Let's load the one called **Gorilla**.

- Move your cursor to the top of the screen so that it is over the Title Bar.

Whenever you move the cursor to the Title Bar, the cursor changes into a pointer.

- Press the right mouse button.

The Menu Bar replaces the Title Bar and you see a row of menus. In addition, you see one of the menus extending down into the painting area.

As you move your pointer from left to right along the Menu Bar, one after another of the menus extends down, each one displaying its selec-



tion of options. We will be looking at each menu item in detail later, but for now we just need to use the first two options on the leftmost menu, the Picture menu.

- With the right button held down, move the pointer all the way to the left on the Menu Bar to produce the Picture menu options. With the button still held down, move the pointer down to Load, the first item on the list of options, and release the button. This displays the *Load Picture Requester*.

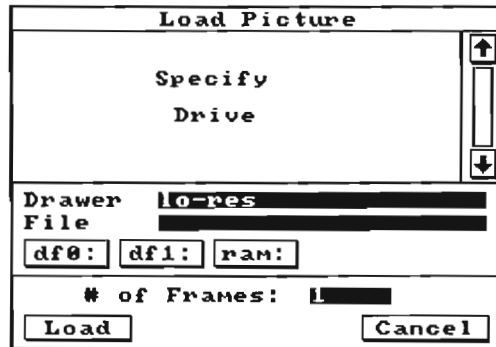


Figure 2.3 *Load Picture requester*

- Insert the Art disk in any disk drive and click the button in the Load requester to look at the contents of that disk. For example, if you have a two-floppy system, put the Art disk in your second drive and click the df1: button to read the contents.

The message "Specify Drive" is replaced by a listing of the contents of your disk. You'll notice that the first item in the list is / Parent (Dir), which indicates that there is a directory (or drawer) level above the one you are in. DeluxePaint automatically opens the drawer for your current display mode the first time you use the Load Picture requester. Notice that the edit field beside Drawer in the middle of the requester shows you are looking at the contents of the lo-res drawer.

You can scroll through these file names (not all of them are always visible at one time) by dragging the *scroll box* (the white rectangle within a dark vertical column on the right side of the requester) up and down. Just point to the scroll box, press the left mouse button, and drag it up or

down. As soon as you release the button, the new file names appear in the window.

You can also scroll through the file names one at a time by clicking the up and down arrows, or you can scroll one page at a time by clicking in the black areas above and below the scroll box.

- Click on the file named Gorilla.

Notice that when you click on the file name the name appears in the edit field beside File. If you wanted, you could type the file name into the edit field, though it is usually easier to click it.

- Click Load.

The disk drive spins for a few moments, and then the picture appears on the screen.

QUITTING DELUXEPAINT

To exit DeluxePaint, choose Quit from the Picture menu. If you have made changes to your document since it was last saved, DeluxePaint will ask whether you want to save your current changes. If you wish to save your changes before quitting, click Yes. (You'll find instructions on saving documents in the next chapter.) To exit without saving your document, click No.

TECHNICAL SUPPORT

If you have questions about DeluxePaint, and you can't find the answers in this manual, our Technical Support department can help. If your question is not urgent, please write to us at the following address:

Electronic Arts Technical Support
P.O. Box 7578
San Mateo, CA 94403-7578



Please be sure to **include the following information** with any correspondence:

- ☐ Which version of DeluxePaint you are using (You'll find this information in the About box in the DeluxePaint program.)
- ☐ Which Amiga model you are using (500, 1000, 2000)
- ☐ Your Kickstart and Workbench version numbers
- ☐ How much random access memory you have installed in your Amiga
- ☐ Additional system configuration notes (for example, number of disk drives, type and make of monitor, printer, etc.)

If you would like to speak to someone directly, call us at (415) 572-2787 Monday through Friday between 8:30 am and 4:30 pm PST. Again, please be sure to have information about your version of DeluxePaint and your computer handy when you call. This information will help us help you more quickly.

CHAPTER THREE: A GUIDED TOUR





NOTES



DeluxePaint has much to offer any user, whether amateur or professional. If you are new to computer graphics and to DeluxePaint, this section will introduce you to the new graphic medium through simple step-by-step exercises. Here you'll learn how to create some simple designs using the built-in brushes and tools, and how to save a picture onto a data disk.

THE PAINTING SCREEN

When you start up DeluxePaint and select your screen format, you are presented with the Painting Screen. Along the top of the screen you see the Title Bar and along the right side of the screen you see the Toolbox and Paint Set.

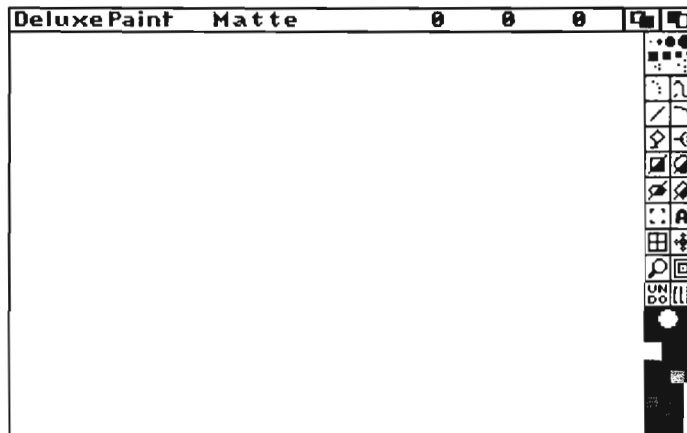


Figure 3.1 *The Painting Screen*

The area to the left of the toolbox is where you work on your pictures. This area is called the *page*. The normal page size is the same as the screen size, but in the next chapter you'll see that you can make the page much larger. When your page is larger than the screen, you can scroll the page by pressing the arrow (cursor) keys on the keyboard. When you use the arrow keys, think of them as moving the screen rather than the picture; pressing the down arrow moves the screen down, so it looks like the page is moving up.



THE TITLE BAR

The Title Bar lists the name of the program. It also lists the current brush mode, and (when you are using those options) the coordinates of the mouse and the current fill type. At the moment, this information probably doesn't mean anything to you, but as you become familiar with DeluxePaint, you'll find that the information in the Title Bar can save you a lot of time.

THE MENUS

The menus in DeluxePaint work just like other Amiga menus: point to the Title Bar and press the right mouse button to display the Menu Bar. Then, still holding down the mouse button, point to a menu name to open that menu. Finally, pull the highlight down to one of the menu options and release the mouse button to select that option.

THE PALETTE

The lower right corner of the Painting Screen contains the Palette, where you select the color you want to paint with. The number of colors in the palette depends on the screen format you are using. You'll learn more about screen formats and how they affect the number of colors available when you read the next chapter, or you can skip ahead and look in the Reference under Screen Format in the Picture menu.

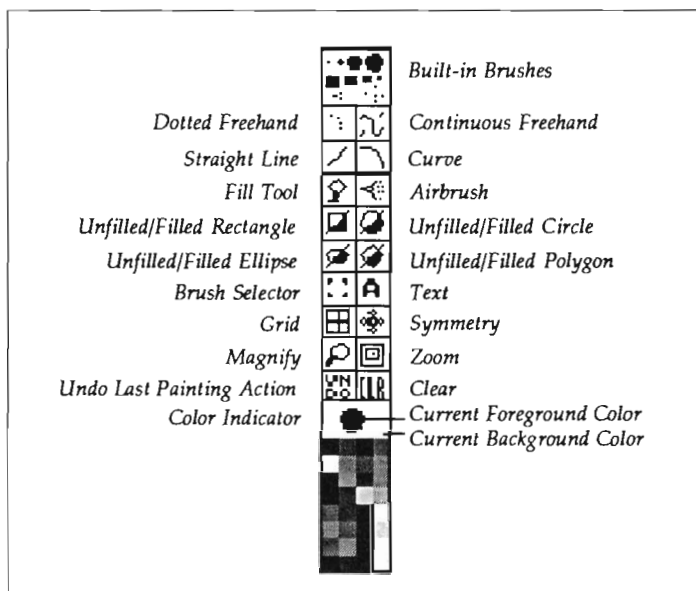


Figure 3.2 *Toolbox and Palette*

THE COLOR INDICATOR

Directly above the Palette is the Color Indicator, a filled circle sitting on a black rectangle. Notice that the rectangle, the first color in the Palette, and the page are all the same color. The first color in the palette (black) is the default *background* color. If you were to paint with the background color directly onto the background, it would appear to have no effect, as if you were putting black paint onto a black canvas. As you'll see in a moment, painting with the background color is a way of erasing an image on the page.

The circle in the Color Indicator shows the *foreground* color. This is the color your brush paints with. You can change this color at any time by clicking one of the other shades in the Palette with the left mouse button. Try it.

- Move the pointer to one of the colors in the palette and click.

Notice that the circle above the Palette changes to show the new foreground color. Click the other colors and see how the circle changes each



time. You can do the same thing with the background color, by clicking with the right mouse button.

- Move the pointer to one of the colors in the Palette and click the right button.

Notice that although the rectangle surrounding the circle is now filled with the new background color, the painting area itself is still the old background color. This is because DeluxePaint assumes that you want to maintain the old background color as a “wash” over the new background color, and will keep it there until you clear the painting area. Try it now.

- Click the button labeled CLR directly above the Palette. This clears the screen of the old background color and replaces it with the new one.

Before you do anything else, let’s get acquainted with one of the most important tools in the Toolbox, the Undo button. Located to the left of the CLR button, the Undo button will generally “undo” your last painting action.

- Click Undo now to bring back the old background color.

Undo reverses your last action, provided there has not been an intervening mouse click, so if you were to click CLR twice, for example, clicking Undo would not reverse the clear command.

PAINTING WITH THE MOUSE

Now that you’ve seen how to choose colors from the Palette, let’s put brush to paper and create our first freeform drawing.

- Select a foreground and a background color by clicking with the appropriate buttons on the palette. Choose contrasting colors, such as blue for the foreground and light gray for the background.
- Click CLR to cover your page with the background color.

Move the pointer over to the page (where it turns into a cross-hair) and, while holding down the left mouse button, draw a figure on the screen. Don't worry about quality for the moment — a squiggly line or a rough circle will do.

- Now press the right mouse button and draw over your first figure.

Notice that the right mouse button has the effect of erasing your drawing, although what you are actually doing is painting over it with the background color. The rule here is simple: use the left mouse button for painting with the foreground color, and the right button for painting with the background color. Notice that this parallels the rule we noted above for selecting colors from the Palette: select the foreground color by clicking with the left button and the background color by clicking with the right button.

Before we move on, let's scroll the page a bit so you see how this works.

- Draw a little scribble on the screen so you'll be able to see it move. Now press the down arrow on your keyboard to move the screen down to see lower on your page.

As we mentioned earlier, the page is normally the same size as the screen. You're able to scroll a little down and to the right now, because the Title Bar and Toolbox are hiding part of the page.

PICKING COLORS FROM THE SCREEN

So far you've been selecting your colors by clicking the colors in the Palette. If you like, you can also select your colors directly from the screen. This is useful if you are working on fine details, or if you are working with many shades of the same basic color. For example, if you are painting a rose and are using eight different shades of red, it might be easier to pick the color you need directly from the screen where you are working.

- To do this, click on the Color Indicator and move the pointer back to the screen. The pointer is labeled "Pick." Point to a color on the screen and click either the left or the right mouse button to select a new foreground or background color. (An even easier way to select a color from the screen is to use the keyboard equivalent. Press the comma (,) key to get the Pick pointer and then click a color.)



Practice painting with the mouse for a while and try selecting colors from the screen. Remember, you can always click Undo to reverse your last action, or CLR to clear the screen and start afresh. As soon as you're ready, move on to the next section, where we will be examining DeluxePaint's collection of brushes and tools.

THE TOOLBOX

THE BUILT-IN BRUSHES

So far you've been painting with the single pixel brush that's selected when you first load DeluxePaint (a pixel, short for picture element, is the smallest unit observable on the screen). DeluxePaint includes ten built-in brushes: four round ones, four square ones, and two made up of a number of separate pixels. The built-in brushes are at the very top of the Toolbox.

- To select a brush, move the pointer over the brush shape and click with the left mouse button.

Note that clicking a brush shape highlights it to indicate that it is the currently selected brush. As we'll see, this convention applies to all the other tools, as well as to the currently selected foreground color in the Palette.

- With your new brush selected, paint as before, using the left button to draw with the brush color and the right button to draw (or erase) with the background color.

In the next section we will be looking at the other drawing tools and seeing how they interact with the brushes.

THE PAINTING TOOLS

The ten icons below the brushes (in two columns of five) control the painting tools. Because any brush can operate with any given painting tool (except the Text tool), you have a wide variety of combinations at your fingertips.

- To select a tool, click it with the left mouse button.

We'll describe the tools in order, moving left to right and top to bottom:

The Dotted Freehand Tool allows fast freehand drawing. No matter how fast you draw with this tool, it keeps up with you, making it ideal for sketching out a shape quickly before concentrating on the intricate details. Note, however, that the faster you go, the bigger the gaps in your drawing. Once you have roughed out a shape with the Dotted Freehand tool, you can then refine your image using some of the other tools at your disposal. Try drawing with it using some of the other brushes to get a feeling for how it works.

The Continuous Freehand/Freehand Shape Tool. Because it produces unbroken lines, but doesn't keep up with you if you draw fast, the Continuous Freehand tool is better suited for slower, more painstaking drawing. Note, however, that the smaller the brush, the better it is at keeping up.

- Try the Continuous Freehand tool with different brushes and see how brush size affects speed.

Notice that the Continuous Freehand Tool icon has a diagonal line running from its top right to its bottom left corner. This is because it is actually two tools in one — the top left one draws unbroken freehand lines, while the one at bottom right creates freehand shapes filled with the current foreground or background color.

To create a filled shape:

- Click the lower right part of the Continuous Freehand tool and paint any shape.

This time, when you release the mouse button, the shape you paint is filled with either the foreground or background color, depending on which mouse button you press when you paint the shape. If you release the mouse button before you close the shape, DeluxePaint closes the shape for you with a straight line from your cursor position to where you began the shape.



The Straight Line Tool lets you draw straight lines just by clicking and dragging the mouse. Here's how it works:

- First, click on the Straight Line tool to activate it, and then move the cross-hair to the point on the page where you would like the line to begin.
- Now press the left mouse button to anchor the line at that point, and, while holding the button down, drag the mouse to the point where you want the line to end.

When you release the button, you have a straight line in your selected brush color and brush size. Note that you can also draw straight lines with the background color by using the right mouse button.

The Curve Tool draws curved lines between two points on the painting area. It works just like the Straight Line tool except that it requires an additional mouse click to complete the process. Here's how:

- Select the Curve tool and anchor the curve by pressing the mouse button. Drag it to the point where you want the curve to end, and release the button.

Now, as you move the mouse away from the end points, you'll notice that the line is still "active," behaving as though it were a rubber band attached to the cross-hair. Accordingly, the line will curve to follow the cross-hair wherever you drag it.

- As soon as the curve is the right shape, click the mouse button to freeze it at that position.

With a little practice, you'll be able to make curves of any shape and size, giving you much more flexibility than any collection of plastic templates with their limited selection of shapes and sizes. Try joining a series of curves to make flowing shapes with changes in curve direction.

The Fill Tool fills any enclosed shape with the current foreground or background color.

- To use the Fill tool, click the icon with the left button, move the cursor (which now looks like a paint can) to an enclosed shape, and click one of the mouse buttons.

You can fill the shape with the current foreground color by clicking the left button, and with the current background color by clicking the right button. Note that the Fill tool fills all the way to the boundaries of an *enclosed* shape. If the shape is not completely enclosed (that is, if there is a hole in its perimeter), the paint will “leak” through and fill the entire page. If this ever happens, you can stop the filling process by pressing the Spacebar. This aborts the current Fill command and returns the screen to its pre-command state.

The paint can spout — the part you must put inside the enclosed shape — is the small (one pixel) gap at the base of the icon. With careful maneuvering, you can fill a space as small as one pixel, so long as the point coincides with that space.

The Airbrush is a full-featured airbrush with adjustable tips and nozzles. By using the Airbrush in combination with the different brushes, you can create a variety of effects, ranging from a fine one-pixel spray to a coarse spray made with the big brushes. In the following chapter we will see how to adjust the width of the spray, but for now let’s try it as is.

- Click the Airbrush icon with the left button, and then try painting with it using the various brushes.

Try it with the three- and five-pixel brushes, and then try it with the big brushes. Note that, just like a regular airbrush, if you keep the mouse button pressed without moving the mouse, the paint continues to build up in one spot.

The Rectangle Tool lets you draw squares or rectangles, either unfilled or filled with the current brush or background color. Like the Continuous Freehand tool, the Rectangle tool has a diagonal line running from its top right to its bottom left corner. Let’s try making a few rectangles.

- Click the top left half of the icon with the left mouse button. Move the pointer onto the painting area (where it changes into a large cross-hair), press the left mouse button to anchor one of the corners of the rectangle, and, while holding the mouse button down, drag the mouse away from the anchor point.



You can drag the mouse down and to the right (in which case the first button press anchors the rectangle's top left corner), or in any other direction you wish. In any case, the rectangle is completed as soon as you release the button. Note that it is unfilled and bordered by the current foreground color. You can also create an unfilled rectangle bordered by the background color by using the right mouse button. First, click another color on the Palette with the right mouse button, and then make a rectangle using the right mouse button.

- To create a filled rectangle, click the lower right part of the Rectangle icon and repeat the procedure above.

This time, the rectangles you create will be filled with either the foreground or the background color, depending on which mouse button you press when you create the rectangle.

Incidentally, if you hold down the **Shift** key as you draw, you can constrain the rectangle so that its height and width are equal. (*Note:* because the Amiga's pixels are not perfectly square, "constrained" rectangles will not appear square on the screen. You can compensate for this at the printing stage, or by selecting **Be Square** from the Prefs menu. See the discussion in the Reference Section under Prefs menu.)

The **Circle Tool** works like the **Rectangle** tool, above:

- Click the top left part of the icon with the left mouse button to get an unfilled shape, or the bottom right to get a filled shape. Move to the painting area, then press and drag with the left button to create a circle with the current foreground color, or with the right mouse button to create a circle bordered or filled with the current background color.

Notice that circles are painted from the center outward, so it's easy to put a circle around anything just by starting to paint from where you want the center of the circle.

The **Ellipse Tool** works just like the **Circle** tool, except that it is still "active" after you release the mouse button. Try it.

- Click the icon with the left mouse button (remember, top left for unfilled, and bottom right for filled shapes), move the pointer to the

painting area, and draw an ellipse by dragging the mouse. Now release the button.

Note that even though you have released the button, the ellipse continues to change shape as you drag the mouse around.

- As soon as your ellipse is just the right shape and size, press down the mouse button and hold it there.

Now you can rotate your ellipse until it has just the right tilt.

- Move your cursor around the ellipse with the mouse button still held down and watch your ellipse rotate. When it is in just the right position, release the mouse button.

When you complete your ellipse, the small cross-hair changes into the large cross-hair to let you know that DeluxePaint is ready for the next ellipse.

The Polygon Tool lets you keep drawing straight lines until you have created a closed figure. Here's how it works:

- Click the Polygon tool with the left mouse button, move the cross-hair into the painting area and click the button once to anchor the starting point of your polygon, and then a second time to complete the first line, as if you were using the Straight Line tool.

You will notice that your cross-hair is still connected to the first line by a second straight line.

- Click the button again to finish that line, and so on until you have completed your polygon.

The polygon is completed as soon as you click the button with the cross-hair on your starting point. If you are creating a filled polygon, it will be filled with the current foreground color if you complete the figure with a left button click, and the current background color if you complete it with a right button click.

Because it can sometimes be a little tricky to end up on the exact pixel you started with, you can complete a polygon at any time by pressing the



Spacebar. This automatically connects the last anchored point to the point of origin and, if it is a filled polygon, fills it with the current foreground color.

- Try drawing some five-pointed stars with the filled Polygon tool and see what happens.

ANYTHING CAN BE A BRUSH

We'll skip over the rest of the tools in the toolbox for now, except one. (The remaining tools will be covered in Chapter Four: The Elements.) The icon just below the Ellipse is the **Brush Selector**, a special tool that is an essential part of DeluxePaint's versatility. With the Brush Selector, *anything can be a brush* — any piece of artwork or text you put on the screen.

- To see it in action, click the Brush Selector, then move the cursor over to the painting area.

Notice that your cursor is now a large cross-hair that reaches to the edges of the screen. Select one of the stars you made earlier by following the next step.

- Put the center of the cross-hair to the upper left of the star. Then, while holding down the left mouse button, drag the cursor to the lower right of the star, as if you were using the Rectangle tool to enclose the star in a box. Release the mouse button.

When you release the mouse button, the cursor now has a copy of the star attached to it. This second star is your new brush!

- To stamp a star in a new location, click the left mouse button. There's no need to stop with one — go ahead and star-spangle the screen.

We will be covering this powerful feature in greater depth in Chapter Four. However, there is one aspect of brush selection you should be aware of: if any parts of your brush consist of the current background color, those parts will be transparent. In other words, whenever you pick up a brush, it's as if you are picking up only the non-background colors; any background colors in the brush will remain invisible even after you

change to a new background color. This means that you can create brushes with intricate outlines without fear of picking up a rectangle of the surrounding background color.

Let's try one more trick.

- Click the Brush Selector again and select a star from the painting area, but this time use the right mouse button to drag the cross-hair over the star.

Unlike the last exercise, which yielded two stars — one unmoving original, plus the one on your brush — this time you are picking up and moving just the one star. While the first feature lets you copy and move anything on the screen, the second lets you move images from one part of the screen to another, while leaving no trace behind.

SAVING YOUR WORK

Before we move on to the next chapter, where we'll be looking at DeluxePaint's basic elements, let's see how to save the pictures (or "files") you create. We'll begin by saving whatever you drew in the preceding sections.

- First, move the pointer up to the Menu Bar and to the left to the Picture menu. Press the right mouse button to extend the menu, and then select Save.

You are presented with the Save Picture requester.

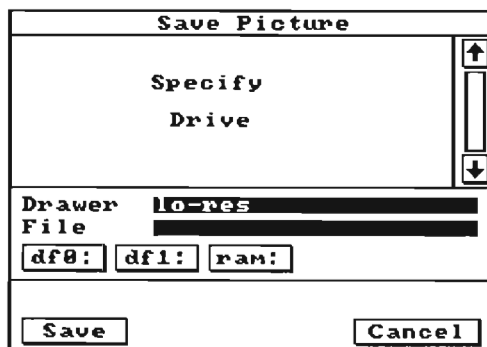


Figure 3.3
Save Picture requester



Notice that the Save Picture requester is just like the Load Picture requester in almost every respect. It is through the Save Picture requester that you provide DeluxePaint with the information it needs to save your files.

The bottom half of the Save Picture requester consists of the additional information DeluxePaint needs in order to save the file in its proper classification. The first of these, Drawer, tells DeluxePaint which drawer to save the file in. By using drawers to classify your pictures, you can keep related images together, in the same way you keep related papers together in one file folder. For example, the setting might be `df0: lo-res`, which means that the drawer exists on a disk in the internal drive ("`df0`") and that the drawer is named "lo-res." Directly below this box is one labeled File. This is where you enter the name of your picture the first time you save it.

If you want to save your current creation, this is your chance to do so.

- Insert a blank, formatted disk in any drive. Click the button for the drive that contains the blank disk. Now click anywhere in the File gadget, type in the name you have chosen for your new file, and click Save.

The disk drive will spin for a few moments; when the red light goes out, the file is saved.

The next time you save this file (it's a good idea to save work in progress every 15 minutes or so, so that a power failure or other breakdown doesn't turn hours of work into a bitter memory), the Save Requester uses this same information, which means you won't need to type anything more unless you want to change the file name. You might want to do this to save it under another name, if you want to save each version as a separate file. In that case, you would click the File gadget as before, backspace over the old file name (or over those parts you wish to change) and type in the new name. Or you could just keep adding suffixes, such as 1, 2, 3, etc., to signify succeeding versions.

You can specify drawer names in the same way: click in the Drawer gadget, backspace over the old name, and type in the new name. You can open any drawer already on the disk, but you cannot create one from the Save Requester. See your Amiga User Guide for information on creating new drawers.

LOOKING AHEAD

Before you move on to the next chapter, or off on your own to explore DeluxePaint, we want to show you a few of the interesting and powerful features of the program. You'll find more information about these features in other chapters of the manual. Perhaps this brief demonstration will pique your curiosity enough to make you read some more.

NIGHT AND DAY

This section demonstrates a little of what you can do by customizing your palette. You'll see how to customize your palette in the next chapter, but for now, we'll look at one of the effects you can create.

- Insert the Art disk in any drive. Choose Load from the Picture menu. Click the drive button for the drive that contains the Art disk, for example, df1:. Scroll down until you see the Tutorial drawer. Click on the Tutorial drawer and load the file named Seascape.

Take a few moments to examine the picture carefully. Note, for example, that the Palette is different from the one we were using before. This is because the new picture comes with its own Palette, which supersedes the old one. You can revert to the default Palette at any time through a simple menu selection. Let's try it now and see what happens.

- Pull down the Picture menu and drag the pointer down to Change Color. When you do, you will see a secondary menu appear to the right of the selected option. With the button still held down, move the pointer to the right and down the secondary menu until the option Default Palette is highlighted, and then release the button. (In the future, we'll describe choosing from a submenu in a simpler form: Choose Change Color>Default Palette from the Picture menu.)

Did you see what happened? The new Palette was replaced by the default Palette, making the picture change from night to day! If you want to restore the original Palette, choose Change Color>Restore Palette from the Picture menu. This is just one example of the many ways you can make global (and dramatic) changes to a picture with just one action.



FIXING THE BACKGROUND

This section shows one a very powerful feature that lets you paint on your picture without fear of accidentally messing it up.

- With the Seascape picture on your screen, choose Background>Fix from the Effect menu.

What you have just done is remarkably simple, and yet remarkably powerful. You have fixed the picture onto the background so that it cannot be removed. Try it.

- Click CLR and see what happens. That's right — nothing.

The picture is fixed, which means you can draw over it any way you like.

- Select a thick brush and scrawl on the picture. Do it with the airbrush if you like. Then scrawl using the right mouse button and see what happens.

When you have the background fixed, painting with the right mouse button is truly erasing! Note that you can paint on the picture and then fix the background again to fix the new version. You can erase everything you painted since the last fix with a single mouse click. And you can “unfix” the background as easily as you fixed it: just choose Background>Free from the Effect menu. This restores everything back to normal, so that clicking CLR clears the entire picture.

We'll look more closely at this feature in the next chapter when we look at custom brushes and the way they interact with the background. Meanwhile, feel free to experiment further with this feature. Art restorers should have it so easy.

ANIMPAINTING

We realize that you may have just started painting on a computer for the first time. But we'll take a daring leap forward to show you animating on a computer. Right now we'll show you a special kind of painting on multiple frames. Just follow the steps carefully, and you'll see some wonderful results.

- Choose AnimBrush>Load from the Anim menu. Insert the Animation disk in any drive and click the drive button for that drive. Click on the file named Bird and click Load.

When the requester closes, you'll have an animbrush of a bird attached to your cursor. An animbrush is special in that it is made up of many cels (short for cellophanes) that flip as you paint.

- Click the brush down once.

Notice that now your brush looks different. Each time you click the button the brush moves to the next cel.

- Click the brush down again. Then go ahead and paint freehand across the screen to see all of the cels of the animbrush.

ANIMATION FRAMES

Above, we had you painting with an animbrush on a single screen. Now let's look at what happens if you paint one cel of the brush on each of several screens. This is one way to create animations in DeluxePaint III.

- Select light blue as your background color and clear the screen.
- Choose Frames>Set # from the Anim menu. (The Set Frame Count requester appears.) Enter 20 in the Count field. (You do this by clicking at the right end of the field, backspacing over the existing number, and typing the new number.) Click OK.

In a flash, you have 20 animation frames to paint on. Notice the numbers 1 / 20 on the left side of the Title Bar. This tells you that you are on frame 1 of 20 frames. Without further ado, let's paint!



ANIMPAINTING

Animpainting is simply the process of painting at the same time the animation frames flip. In most ways it is like regular painting, since DeluxePaint flips the frames for you.

- Select the Straight Line tool. Hold down the Left Amiga key (the Commodore key on Amiga 500's), click the button and draw out a line from left to right across the screen.

When you let go of your line, you'll see DeluxePaint paint your brush on each frame of your 20 animation frames.

- When DeluxePaint is finished painting, press the 5 key at the top of the keyboard.

You'll see the bird fly. Press the 4 key if you want to see your animation play continuously. Press **Spacebar** to stop the animation.

In this chapter you:

- ☐ *Painted with the mouse using several painting tools*
- ☐ *Created custom brushes*
- ☐ *Learned how to save your work*
- ☐ *Took a quick peek at palette changes, fixed backgrounds, animbrushes, and animpainting.*

Right now you might want to take a break, but once you feel up to it, be sure to work through the next chapter, where you'll learn how to modify tools and work with many other powerful features of DeluxePaint.

CHAPTER FOUR: THE ELEMENTS



NOTES



In this chapter we examine the fundamental "elements" that make up DeluxePaint. If you have some experience with computer graphics software, you may want to use this chapter to learn how DeluxePaint handles features you may have encountered in other programs. As with any other part of this manual, however, you should feel free to skip around and read only those sections that interest you at the time.

We have classified the elements as follows:

The Custom Brushes examines DeluxePaint's custom brush capabilities. This part looks at the various techniques available for modifying a brush.

The Screen deals with all those techniques that affect the entire DeluxePaint screen, such as switching pages, magnifying and zooming, gridding, symmetry, and screen resolutions.

The Palette looks at DeluxePaint's color mixing and color cycling capabilities.

The Tools looks at advanced tool techniques, and shows how to modify some of the standard tools to create just the right tool for the job.

The Painting Modes deals with the various ways you can apply paint to a page or affect paint that is already there.

Text shows how to select fonts, how to enter text, and how to move it about the page.

Keyboard Equivalents takes a quick look at keyboard equivalents and how you can use them *with the mouse button down*.

WHAT YOU'LL NEED

To complete the examples in this section, you'll need your working copies of the DeluxePaint program disk and art disk. If you want to save your work, you'll need an initialized disk with a fair amount of available space for saving large files.



- To begin this section, start DeluxePaint and use the default screen format settings. If you already have the program running, we recommend that you restart so that the tools and option settings are all set to their defaults.

1 THE CUSTOM BRUSHES

As we saw in the Guided Tour in Chapter Three, DeluxePaint's "anything can be a brush" feature lets you select any image on the screen and define it as a brush. Thus, you can keep a selection of images on the spare page and move them over to the main page by picking them up as brushes. In addition, you can load and save brushes as though they were pictures.

CREATING A RECTANGULAR BRUSH

To create a brush out of an on-screen image:



- Click the Brush Selector with the left mouse button. (The icon becomes highlighted but does not change shape.)
- Hold down the mouse button and drag the large cross-hair to form a rectangle around the image you want to pick up. When you release the mouse button, an exact copy of the image is attached to your arrow cursor.

You can now paint with your new brush or use it to create filled or unfilled shapes, just as you would with any of the built-in brushes.

You can drag the Brush Selector cross-hair around an on-screen image using either the left or the right mouse button. As we have already seen, when you use the left button, DeluxePaint makes a duplicate of the image and attaches it to the arrow cursor, while leaving the original image in place on the page. We also saw that if you use the right mouse button to surround the image, the image itself becomes the brush, as if the original image had been lifted up off the page. This technique provides an ideal method for picking up objects and moving them around the page as you experiment with different compositions.

In particular, the combination of right-button brush selection and Fix Background (which we covered briefly in the Guided Tour) lets you lift any complex shape off a fixed background (provided the shape was applied after the background was fixed), without lifting up any of the background. DeluxePaint preserves in memory all those parts of a fixed background that are covered by unfixed shapes, which means that you can move the shapes around the page and uncover the previously hidden background.

CREATING AN IRREGULAR SHAPED BRUSH

As we saw earlier, clicking the Brush Selection tool once with the left button lets you draw a rectangle around any image on the page. Clicking it a second time lets you corral any image, thereby letting you pick up shapes from a "crowded" background. To corral an image:

- Click the Brush Selector tool twice. (The icon becomes highlighted and changes to a polygon shape to show that you have the polygon brush selector.
- Click around the shape you wish to define, just as if you were describing a polygon around it with the Polygon tool (see "The Toolbox" in Chapter Three). As soon as you complete the polygon, the complex shape becomes your new brush.

Note that the left button-right button convention works here as well: corralling the shape with the left button duplicates the shape, while corralling with the right button lifts it up off the background. Note also that this corralling function works just like the Polygon tool in one more important respect: pressing the Spacebar completes the polygon for you, so you don't have to search for the starting pixel in order to complete it.

THE TRANSPARENT COLOR

When you pick up a custom brush (with either the left or right button), some parts of your brush may be transparent. There are two rules for determining which color is transparent:



- If AutoTransp is turned off (the default setting), or if any one corner of the brush is a different color from the others, the current background color is transparent.
- If AutoTransp in the Prefs menu is turned on and every corner of your brush is the same color, that color is transparent.

Let's see how these two rules work in practice with a couple of brief examples.

- To set up for our example, click Color 1 (black) with the right mouse button to make it the background color, click CLR to clear your screen, and then scrawl randomly over the screen with any colors and the Dotted Freehand tool.

THE BACKGROUND COLOR IS TRANSPARENT

Now you should have a black screen with several colors scrawled over it and Color 1 (black) is your background color.

- Click the Brush Selector icon, move the cross-hair to the painting and select a rectangular area that contains some black.

When you release the mouse button, you'll have a brush in which the black areas are transparent because black was the background color (as shown in the Color Indicator) when you selected the brush. Move the brush around to confirm this: the painting shows through the areas where there used to be black. Any parts of the brush that consisted of background color when the brush was first created remain transparent, even after you change background colors. But if you want to change the transparent color, you can do that to, we'll show you that in a moment.

THE CORNER COLOR IS TRANSPARENT

Now let's see what happens when you select an area with all corners the same color.

- Display the Prefs menu and choose the AutoTransp option. (Display the menu again to confirm that AutoTransp now has an asterisk (*) beside it. This means that it is on.)
- Click the Brush Selector twice to get the polygonal selector. Select an irregularly shaped area by clicking to form a polygon of any shape.

Make sure that you always click on the same color, but not on black (since this is the background color and won't illustrate what we want to see).

When you release the mouse button, you'll have a brush in which the color you clicked on is transparent because you have AutoTransp turned on, and all corners of your brush were the same color.

We used the polygonal Brush Selector for our example, but the AutoTransp option is especially useful for picking up a shape from any solid background without having to change the current background color.

CHANGING THE TRANSPARENT COLOR

You can change which color in your brush is transparent by choosing a new background color and then choosing **Change Color>Change Transparency** from the Brush menu. Let's try a quick example.

- Click the Brush Selector and select a rectangular area that contains some of the current background color so that your brush has some transparent areas.
- Choose a new background color by clicking in the Palette with the right mouse button.

Notice that simply changing the current background color does not change the transparent areas of your brush. You accomplish that with the next command.

- Choose **Change Color>Change Transparency** from the Brush menu.

The transparent areas of your brush change from the areas of the original background color to the areas of the current background color. You can do this as many times as you like to change transparent areas.



A BRUSH IS A LITTLE PICTURE

You can treat brushes just like full pictures. Brushes even have their own menu (the Brush menu, the second one from the left), from which you can Load and Save brushes just as you can other pictures. When you load a saved brush, it comes equipped with its own palette, the one that was in effect when the brush was first saved. If the current picture is using a palette different from that of the newly-loaded brush, you can change the current palette to the brush's palette by selecting Change Color>Use Brush Palette from the Picture menu. On the other hand, if you want to use the newly-loaded brush with the current palette, select Change Color>Remap from the Brush menu. The other items in the Brush menu let you resize, reshape, and recolor brushes in various ways. See Tutorial Two for a series of exercises using items from the Brush menu.

Your DeluxePaint disk contains a number of saved brushes, in addition to the ones used in the tutorials. Let's load one now just to see how it works:

- Select Load from the Brush menu. Insert the Art disk into any drive and click the drive button for that drive in the requester. Click the file named Bobsled and click Load.
- The Bobsled brush is attached to your cursor, but it's colors are not correct. Choose Change Color>Use Brush Palette from the Picture menu. Now paint with the brush.

Do you see why this brush is called Bobsled? Feel free to experiment with some of the saved brushes. Select Use Brush Palette whenever you load a brush to ensure that you are seeing it as it was when it was saved. You might also try the one called "Fireworks," but this time select MultiCycle from the Prefs menu and Cycle from the Mode menu, and then press the Tab key before you start drawing with it. "Fireworks" comes complete with color cycling information, and is a spectacular example of the power of this feature. See Tutorial One for more demonstrations of color cycling.

ADDITIONAL FEATURES

The following are some additional features relating to custom brushes:

HANDLE

This feature, which is available from the Brush menu, allows you to specify whether your arrow cursor will sit at the center of your custom brush, or at one of its corners. In the default setting the arrow cursor sits at the center of the custom brush. When you select Corner from the Handle submenu, the brush handle moves to the lower right-hand corner of the brush. Each successive choice of the Corner option moves the handle to a different corner.

Once you have selected Corner, the brush handle attaches itself to the *ending* corner when you enclose a brush. For example, if you pick up your brush by dragging downward from left to right, the brush handle will attach itself to the lower right-hand corner, whereas if you pick up the brush by dragging upward from right to left, the handle will attach itself to the top left-hand corner.

The Handle feature becomes important when you enter perspective mode (see below), because you can rotate a brush about its handle, whether the handle is at the center or on one of the corners.

PERSPECTIVE

DeluxePaint's Perspective feature (in the Effect menu) lets you rotate a brush about any of the three axes of three-dimensional space to define a plane of operation, and then work within that plane to create perspective effects. Perspective is a big subject to cover, so we've provided an entire chapter to cover it, *Working with Perspective*. If you are interested in 3D painting or in 3D animation, be sure to work through Chapter Five: *Using Perspective*.

FAST FB

With Fast FB selected (in the Prefs menu), lines, filled shapes, and unfilled shapes are drawn with a single pixel line instead of the full custom brush until you finish drawing, at which point your shape is repainted with the custom brush. Try painting an unfilled rectangle both ways to see how Fast FB works.



2 THE SCREEN

Some of DeluxePaint's features affect the entire screen, while others, such as the tools and the brushes, affect the screen selectively. This section considers those features that have a screen-wide effect.

HIDING THE TOOLS AND THE MENU BAR

DeluxePaint lets you paint on the entire screen, even under the Toolbox and the Menu Bar.

- To remove these two items from the screen, press the **F10** key. This removes them both if they are both present. Press **F10** a second time to bring them back.
- To hide just the Menu Bar (or to bring it back, if it's hidden), press **F9**.

Note that you can still access the Menu Bar even while it's invisible.

- Move the cursor to the top of the screen (except the upper left corner) and press the right mouse button to display the Menu Bar. You can now select any menu item in the regular fashion.

You can access the tools as well, even with the Toolbox hidden, through the keyboard equivalents. See your Reference Card for a list of keyboard commands.

MAGNIFYING AND ZOOMING



You can magnify any section of your work, and view it alongside the standard-sized image. To magnify a section of your work,

- Click the Magnify icon (the one that looks like a magnifying glass, above the Undo icon). When you move the cursor onto the page, it becomes a rectangular outline. Move the outline to the part of the image you want to magnify and click the left button.

The part of the image included in the rectangle now appears magnified on the right part of the screen. You can now carry out any functions on either side of the screen using any of the tools in the Toolbox. You can scroll around your image using the four arrow keys; this moves the image around under the "magnifying glass." In addition, by pointing your cursor anywhere on the unmagnified portion of the screen and pressing the **n** key, you can magnify that part of the picture.



Once you have magnified a part of your picture, you can increase or decrease the amount of magnification by clicking the Zoom tool.

- Click the Zoom icon with the left mouse button to increase the magnification, and click it with the right button to reduce the magnification.

DeluxePaint's Magnify and Zoom tools let you carry out precision work on your pictures by magnifying each pixel up to 400 times its original size.

- To quit magnify mode, click the Magnify icon a second time.

GRIDS

The Grid lets you apply paint on the page in accordance with an invisible grid and restricts your painting tools to the grid points. To draw on a grid:



Click the Grid icon with the left mouse button, then click the Dotted Freehand tool. Now paint on the screen.

With Grid and the Dotted Freehand tool selected, you can paint only on the points of the grid, making it easy to fill the screen with a polka-dot pattern (we'll see other methods for pattern design later).

You can also control the spacing between the points.

- Click the Grid icon with the right mouse button to bring up the Gridding requester. You can now set the spacing for both the X and the Y coordinates by typing in the actual spacing in the calibration boxes. (Note that the spacing is calibrated in pixels.) Click in the X-



spacing text box, Delete or Backspace to remove the existing value, and then type in the new value — try 20. Do the same with the Y-spacing. Click OK.

- Now try painting on the new grid with the Dotted Freehand tool to see how the grid has changed.

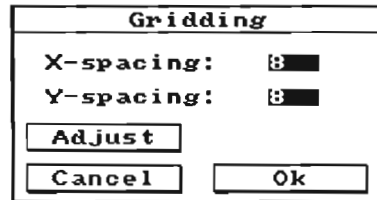


Figure 4.1 *Gridding requester*

You can also recalibrate the gridding by using a visual method (as opposed to the above text entry method):

- Click the Grid Tool with the right mouse button to display the requester. Click Adjust in the requester. (You are returned to the page with a cursor that looks like a matrix. This matrix represents the current grid values in graphic form.) To change the values, press and hold down the left mouse button, drag the mouse until the matrix is the desired size and shape, and then release the button.

The new grid is based on this matrix. You can also reposition the points of the grid using Adjust: move the matrix so that its cells are in the desired position and click the left button.

If you are in perspective mode and you click the grid icon with the right button, you will see the Perspective requester. This requester lets you set a grid for three-dimensional space and also lets you choose other Perspective settings. (See Chapter Five: Using Perspective or the description in the Reference of the Perspective>Settings option in the Effect menu.)

SYMMETRY



The Symmetry tool lets you paint symmetrically over the entire page at the same time. To paint symmetrically:

- Click the Symmetry tool with the left mouse button. Paint whatever you like using the Dotted Freehand tool.

With symmetry selected, your brush is made up of a number of mirror images of itself. As you move the brush around, all the mirror images move as well, producing an effect much like that of a kaleidoscope. When you paint in symmetry mode, you are laying down a number of identical mirror images about a fixed origin. In all cases except the Dotted and Continuous Freehand tools, the mirror images are drawn *after* you release the mouse button. With the Dotted and Continuous Freehand tools, all the images are drawn at the same time.

You can change the settings for the type of symmetry you use by clicking the Symmetry tool with the right mouse button. This brings up the Symmetry Requester. You'll find a brief explanation of each of the options in the Symmetry requester in the Reference section of this manual. For now, if you feel adventurous, try changing the settings and painting with different shapes.

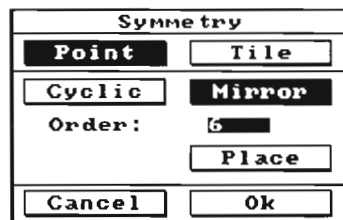


Figure 4.2 *Symmetry requester*

Because the Tile lets you create an entire pattern just by drawing one of its elements, it is an ideal tool for textile designers. Together with Pattern Fill (discussed below), Tile can make a textile designer's life considerably easier.



THE PAGES

DeluxePaint gives you two separate and relatively independent pages to work with. You can use one of the pages for creating background images, and the other for creating foreground images. You can then move parts from one page to the other, or within each page until the composition is just right. As we shall see in a moment, the two pages are not entirely independent. For one thing, they share a common Palette, almost as if they were the same picture.

SWITCHING PAGES

When you first open a new file or load a picture from disk, DeluxePaint opens one of the two pages.

- To move from one page to the other, choose Spare>Swap from the Picture menu, or press the j key.

When you do, you will notice that the Palette you were using in the first page follows you to the second page. This means that if you modify the Palette for one page and then switch to the other page, you end up modifying the second page's Palette as well. Note, however, that although the two pages share the same palette, you can have a different background color on each page. Because the background color is transparent, however (see discussion under The Custom Brushes, above) any part of a brush consisting of background color will remain transparent even if you move it to the spare page with a different background color.

In addition, because the Toolbox is not really part of the page (but actually sits "above" it), whatever tools you had selected before you switched will still be selected after you switch pages. This way, you can retain the same tool settings, giving you continuity as you work. Note that this continuity rule does not apply to the Fix Background and Stencil commands, which do not carry over from one page to the other. See the following section for information on fixing the background, and Tutorial Three in the next chapter for exercises involving the Fix Background and Stencil features.

PAGE SIZE

DeluxePaint lets you work on page sizes ranging from 320 pixels wide by 200 pixels high, to 1008 pixels by 1008 pixels, depending on memory availability. In addition to the three preset page sizes (Standard; Full Page; Overscan), DeluxePaint lets you specify any height and width through the Set Page Size requester. To display this requester, choose Page Size from the Picture menu.

If you are working on a page size larger than the screen, you can preview the entire page at any time by selecting the Show Page command from the Picture menu. You can return to your current page by clicking either mouse button.

SCROLLING THE PAGE

If you are working on a page that is larger than the screen, you'll want to scroll it at some point. You can do this with the arrow (cursor) key, but there is also a better way: place your cursor over the area you want to move to the center of the screen and press the **n** key. If the page can scroll that far, the area under your cursor will be centered in the screen. If the page isn't big enough to center the area, it will move as far as possible. Try it.

SCREEN RESOLUTIONS

DeluxePaint gives you a total of four different screen resolutions, with the ability to switch from one to another even during a single work session. Be aware, however, that changing screen formats in the middle of a job can result in loss of information (such as your current brush, the spare page, the last requester used, etc.), so it is important to *save your work before changing screen formats*. You should develop the habit of saving your work every 15 or 20 minutes in any case, but it becomes especially important to do so if you are about to change formats.

As we noted in the Guided Tour above, you are given the opportunity to select a screen format each time you start DeluxePaint, through the Choose Screen Format requester. In addition, you can display the



Choose Screen Format requester at any time by selecting Screen Format from the Picture menu. Each screen format has its own limitations and memory requirements.

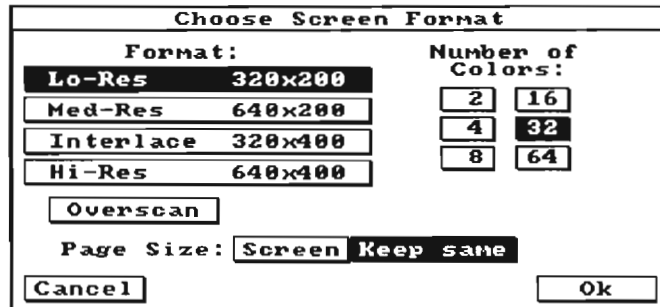


Figure 4.3 Screen Format requester

3 THE PALETTE

This section introduces you to the basics of the Color Palette. You can learn about the Color Palette requester by working through the tutorials in the next chapter or by reading the relevant parts of the Reference section (see Change Color in the Picture menu).

THE COLOR PALETTE REQUESTER

The Color Palette Requester lets you mix your own custom set of up to 32 colors from a universe of 4096. DeluxePaint lets you mix colors using either the RGB (Red, Green, Blue) or HSV (Hue, Saturation, Value) color systems.

- To display the Color Palette requester, either choose Change Color>Palette from the Picture menu, or click the Color Indicator with the right mouse button.

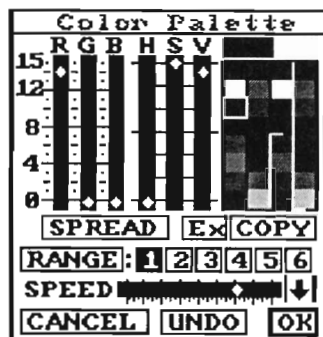


Figure 4.4 *Color Palette requester*

You can modify the currently selected color on any of the six variables (R, G, B, or H, S, V) by dragging the appropriate slider up or down its range. As you do so, note that the two sets of variables are related — for example, as you move the RGB sliders, the HSV sliders respond accordingly.

ARRANGING COLORS IN THE PALETTE

Ex (for “Exchange”) and Copy let you swap or copy colors from one part of the Palette to another.

To exchange the position of two colors: click a color, click Ex, and then click a second color. (The two colors will change places on the Palette.)

To Copy a color over another: Click a color, click Copy, and click a second color. (The first color will be copied onto the second.)

By letting you place colors anywhere on the Palette, these two functions make it easier to create the color spreads you need for your work.

CREATING SPREADS

The Color Palette Requester lets you create color spreads to give you subtle shades of the same hue or equally spaced gradations across hues.

- To create a spread of colors, click the first color for your spread, click Spread, and then click the last color for the spread.



DeluxePaint looks at the first and last colors in the spread and at the number of steps in between, and then calculates the series of intervening shades. For example, if your first color is blue and your last color is yellow, DeluxePaint calculates the intervening shades and hues, to give you a series of blues, blue-greens, greens, yellow-greens, and yellows. Unlike traditional color mixing, if your modifications are not to your satisfaction, you can always reverse the last change by clicking Undo, or you can cancel all the changes you made by clicking Cancel.

DEFINING RANGES

The Color Palette Requester's Range function plays an important role in several DeluxePaint features, in particular, Color Cycling, Gradient Fill, and some Painting Modes. Color Cycling and Gradient Fill are treated extensively in the tutorials in Chapter Six, and you'll find information about Painting Modes later in this chapter and in the Reference.

You can define up to six color ranges and assign a cycling speed and range direction to each. You define each range in much the same way you create color spreads:

- Click the number button for the range you want to define. (The number button becomes highlighted.) Click the first color in the range, click Range, and then click the last color in the range.

Your range is indicated by a bracket to the left of the colors in the range.

THE COLOR PALETTE AND SCREEN FORMATS

DeluxePaint contains a universe of 4096 colors, from which you can use up to 32 at any given time. The maximum number of colors available in each format is listed below. The number of colors you can have at any time depends on available memory; if your page is large or you have a large brush, you may not be able to choose the maximum number of colors.

Lo-Res	32 (64 if your computer supports Extra Halfbrite)
Med-Res	16
Interlace	32 (64 if your computer supports Extra Halfbrite)
Hi-Res	16

See the Reference for information on the various screen formats. See also Appendix A: Memory Management for more information on memory usage.

4 THE TOOLS

DeluxePaint's painting tools are available through the Toolbox, the panel on the right-hand side of the screen. As we have already seen, you can activate any tool by clicking its icon with the left mouse button. A tool remains active (and its icon highlighted) until you select another tool or, in some cases, deselect it by clicking the icon a second time. Examples of the latter kind of tool are the Grid and the Symmetry and Magnify tools, which are toggled on and off by each mouse click.

MODIFYING TOOLS

In most cases, clicking a tool icon with the right mouse button lets you modify some fundamental aspect of that tool. The following summarizes the effects of right-button mouse clicks on the tools in the Toolbox:

The Built-In Brushes You can change the size of any of the built-in brushes at the top of the Toolbox.

- To change the size of a built-in brush: click the brush with the right mouse button, move the cursor over to the painting area, hold down either mouse button and drag diagonally.

You can do this not only to the eight solid brushes, but also to the three- and five-pixel brushes below them.

The Airbrush You can adjust the Airbrush's nozzle by clicking the Airbrush icon with the right mouse button.

- Click the Airbrush with the right mouse button. Move the cursor to the painting area. Hold down the left mouse button and drag diagonally to adjust the size of the solid circle, which represents the spray area.



Straight Line, Curve, and Unfilled Shape Tools A right-button click on any of these tools brings up the Spacing requester.

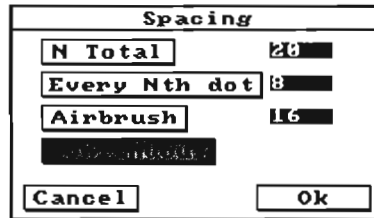


Figure 4.5 *Spacing requester*

The Spacing requester lets you control the distance between “splats” in your lines. This lets you choose whether a line is continuous or dotted. If you want a dotted line, you can define the line in terms of the total number of dots (N Total) or by the number of pixels between dots (Every Nth dot). You can also choose Airbrush to use the Airbrush tool with any of the tools that use the Spacing requester. This is especially useful for smooth airbrushed curves and circles.

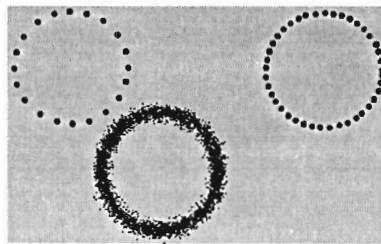


Figure 4.6 *Circle drawn with different settings in the Spacing requester*

Fill and Shape Tools Clicking any of these icons with the right mouse button brings up the Fill Type requester. This requester lets you choose one of several fill types for your fills and filled shapes. Many features of the Fill Type Requester are covered in both Tutorials One and Two and in the Reference section.

Brush Selector Clicking the Brush Selector with the right mouse button restores the last custom brush. Thus, if you had created a custom brush (see The Custom Brushes in this chapter for details) and then made some

modifications, clicking the Brush Selector with the right mouse button would restore you to the previous custom brush. This feature is also useful if you create a custom brush and then select a built-in brush. Clicking the Brush Selector with the right button restores the custom brush.

Text Tool Clicking the Text tool with the right mouse button displays the Choose Font requester. You use this requester to choose fonts and styles for the Text tool to use. See “Text” later in this chapter for an explanation of how to use the Text tool and the Choose Font requester.

Grid and Symmetry Tools Right-button clicks on these icons let you modify aspects of gridding and symmetry. See Grids and Symmetry in this chapter for a description of these features.

5 THE PAINTING MODES

The options in the Mode menu control the way your brush applies paint to the page. In this section, we’ll look at a few of the modes. You’ll find information about all modes in the Reference section.

To look at some of these modes, you’ll need paint on the screen, so let’s load a picture.

- Load the picture Venus from the Art Disk.

First let’s look at a couple of modes that change paint already on the page — these are Smear, Shade, Blend, and Smooth.

- Select the largest round built-in brush, the Dotted Freehand tool, and Color 0 (black).
- Choose Smear from the Mode menu, move the brush down to Venus’ mouth, hold down the left mouse button, and drag back and forth across her mouth.

Notice that instead of laying down black paint, your brush smears the paint already on the screen. Smear mixes the existing pixels rather than changing their colors.



- Choose Smooth from the Mode menu, hold down the left mouse button and drag your brush once along the edge of Venus' chin.

Again, the brush uses colors other than black to paint with. Smooth reduces the contrast between two adjoining areas by painting intermediate shades along the boundary of the two areas. Smooth looks at the current palette and finds the colors closest to the ones under the brush. If the palette contains a wide selection of colors close to the ones under the brush, it will have more colors to choose from. In our case, there are many colors between the dark brown of the chin line and the yellows of Venus' face, so DeluxePaint does a good job of smoothing the edge.

Some of the painting modes change the way the colors of your brush are used. In particular Matte and Color determine whether a custom brush will paint with the colors in the brush, or the current foreground color. Let's see how that works.

- Choose Load from the Brush menu and load the brush named MultiCylce Me on your Art disk. Choose Change Color>Use Brush Palette from the Picture menu.

Notice that when you load a custom brush, your painting mode is automatically changed to Matte. Matte paints with the colors in your custom brush.

- Drag the custom brush straight down your page to paint a broad stripe of several blues and reds.
- Now choose Color from the Mode menu and drag the brush down again.

This time your stripe is all one color, because Color uses the current foreground color and the shape of your custom brush to paint.

- Choose Cycle from the Mode menu and drag another stripe.

Now your brush paints a stripe with a band of color running horizontally. Notice that the colors change in the order of the colors in your palette. Cycle uses the ranges in the Color Palette requester and cycles the colors as it paints. This is a good example of where ranges affect the way a painting mode works.

- Finally, choose MultiCycle from the Prefs menu. Select the Straight line tool and drag a line straight down from the top of the page.

MultiCycle tells DeluxePaint to cycle each color in your brush individually when you use the Cycle mode. Since your brush is made up of many colors, they create a many colored pattern.

EXTRA-HALFBRITE MODE

Hbrite mode is a new feature in DeluxePaint. This painting mode is only available if you are using 64 colors. So, let's change our screen format now.

Choose Screen Format from the Picture menu. In the requester, click 64 colors and click Ok.

Now your palette should contain 64 colors. The first 32 colors are the same colors you had in Lo-Res format. The second 32 colors are halfbrite equivalents of the first 32.

- ❖ *Note* Not all Amiga 1000's support Extra Halfbrite mode. If the second 32 colors in your palette are the same as the first 32 colors, you do not have an Extra Halfbrite chip. Contact your Amiga dealer for information on how you can upgrade your computer if you want to use this mode.

Let's take a look at how Hbrite paints.

- Choose Load from the Picture menu and load the picture named Hall of Stars from the Tutorial drawer in the lo-res drawer of your Art disk. When the requester asks if you want to change the screen format, click NO.
- Now select the largest built-in brush and the Dotted Freehand tool. Choose Hbrite from the Mode menu. Scrawl anywhere on the picture using the left mouse button.

Notice that when you paint with the left button in Hbrite mode, any colors that are the first 32 in your palette are changed to their halfbrite equivalent. This makes it look as though your picture is getting darker. Hbrite mode is a great way to add shadows to your pictures.



- Now scrawl over your picture again, but use the right mouse button.

Any areas of your picture that are already in one of the first 32 colors of your palette are unaffected by your paint, but areas that are painted with any of the 32 halfbrite colors become lighter.

We've demonstrated only a few of the painting modes in this section. Be sure to take the time to review the description of the modes in the Reference section. Clever use of painting modes can save you time and help you create interesting effects.

- Before you move on to the next section, choose Color from the Mode menu. This is the default mode.

6 TEXT



DeluxePaint's text editor lets you place text anywhere on the page, and the Brush Selector lets you pick it up and reposition it if you didn't have it quite right the first time.

To enter text on the page:

- Click the Text tool. Move the cursor to the page and click where you want to start typing text. (This leaves the text cursor on the page.) Now type on the keyboard.

The text will "wrap" around to the next line when it reaches the end of the line, or you can press Return to start a new line directly below the point where you first placed the cursor. If the page size is larger than the screen, the screen will scroll to the edge of the page as you type. You can delete text by using the Backspace key. Note, however, that if after entering a portion of text you click the cursor elsewhere on the screen, or you select a tool from the Toolbox, that text becomes a bit-mapped image, and no longer behaves as text. In other words, you cannot Backspace over it as you could when it was still active as text.

You can change the color of your text by choosing a different foreground color.

- Select a new foreground color and type some more.

You can change colors as often as you like. You can even use the Cycle painting mode with your text tool.

- To select a different font, click the Text tool with the right mouse button to display the Choose Font requester. Click a font in the scrolling list in the upper left corner of the requester, choose from the available font sizes by clicking on the up and down arrows beside the Size gadget, and click any of the Style buttons (Bold, Italic, Underline), to apply any font style you want. When you have everything you want, click the Show button and then click OK.

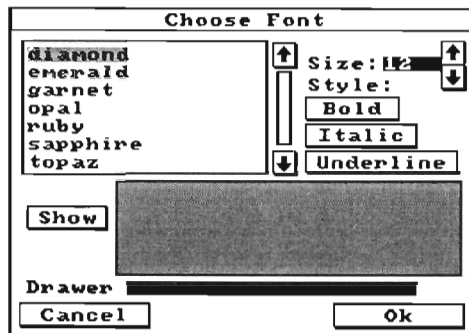


Figure 4.7 Choose Font requester

A special feature of the Choose Font requester in DeluxePaint III is the ability to load fonts from a fonts directory on a different disk. In addition, your Art disk contains two special colored fonts. To use these multi-colored fonts you need to run the ColorText program (double-click the ColorText icon [ABC] on the DeluxePaint III program disk) before you run DeluxePaint III. Do that now, before loading the fonts from your Art disk. When ColorText is active, do the following:

- Display the Choose Font requester. Insert the DeluxePaint Art disk in any drive. Click in the Drawer edit field, type **art:fonts**, and press Return. (If you are using a one drive system, you'll be prompted to swap disks a couple of times. Just follow the prompts.)

In a moment, the fonts list from your Art disk appears in the Choose Font requester. Let's use one of the fonts.



- Click the font named KaraGRANITE and click Ok. A message asks if you want to use the font's palette. Click Yes. Place your text cursor and type away!

If you want to move text once it's on the screen, use the Brush Selector to pick it up and move it around. If you are adding text to a picture, there are two good tips you should know: If you fix the background before you type the text, you'll be able to move the text without messing up your picture. Another way to do this is to jump to the Spare page to type your text and then pick it up as a brush to place on your picture.

7 KEYBOARD EQUIVALENTS

More than ever before, keyboard equivalents are an integral part of DeluxePaint. The most important thing to remember about the keyboard equivalents in DeluxePaint is that you can use most of them *while the mouse button is down!!!* This means that you can use multiple features simultaneously.

A simple example of where using the keyboard equivalents comes in handy is the case of trying to pick up a brush very precisely. Here's what you might do:

Click the Brush Selector. Move the cross-hair to the area you want to magnify and press **m** to turn on magnification. Begin surrounding the area you want to pick up and, while the mouse button is down, press **m** again to turn off magnification. Move the cross-hair to the other corner of the area you want to select and press **m** again to magnify for precise selection. Finally, release the mouse button and you have your brush.

This is just one example. There are more at every turn. In particular, when you begin working with animation, you'll find that the keyboard equivalents let you do many things that otherwise would be impossible. If you ever need to use a menu option or other command while the mouse button is down, go ahead and try the keyboard equivalent; it usually works.

You'll find a complete listing of keyboard equivalents at the back of this manual in Appendix B. You'll also find a summary of the keyboard equivalents on the reference card.





NOTES



This section explains DeluxePaint's powerful Perspective feature. This feature lets you paint in three dimensions to give your pictures a true feeling of depth. Perspective is not an easy feature to master, so we strongly recommend that you become familiar with the material in the preceding chapters before you venture into this area. We've worked hard to make this explanation straightforward, but due to the complexity of Perspective itself, the steps we list will assume that you understand other program features.

THE THREE DIMENSIONAL MODEL

When you use Perspective in DeluxePaint, you are actually working with a model that represents three dimensions using the two that are available on your screen. It will help you a good deal if you think of your computer screen as the front side of a box.

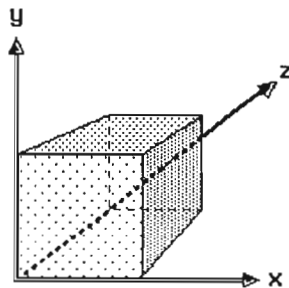


Figure 5.1 The 3D Space and Screen Coordinate System

Usually, when you paint with a brush in DeluxePaint, the mouse moves your brush in only two directions: horizontally and vertically. As you move and rotate your brush in Perspective, you add a third direction to the motion: backward and forward. To move the brush into the distance, you will move it on the Z axis of the coordinate system. We'll explain more about this later. For now, just remember that in its default settings, the screen coordinates operate as shown in Figure 5.1; the X axis runs horizontally across the screen, the Y axis runs vertically, and the Z axis runs backward into the screen.



ROTATING A BRUSH IN 3D SPACE

The key to working in Perspective is rotating the brush. In this brief section, we'll show you how to rotate your brush using the numeric keypad. Before you begin, you need a brush to rotate.

- Load the Dolphin Brush from the Art disk. Then choose Change Color>Use Brush Palette from the Picture menu.

Now that you have your brush, you are ready to enter Perspective mode.

- Choose Perspective>Do from the Effect menu.

When you enter Perspective, your screen contains a small cross-hair to indicate the Perspective Center (or line of view) and your brush is enclosed in a frame with a large cross-hair over it. In our example, you will also see three zeros on the right side of the Menu Bar; these indicate the current rotation angles of the brush. The numbers are all zeros because we haven't rotated the brush yet.

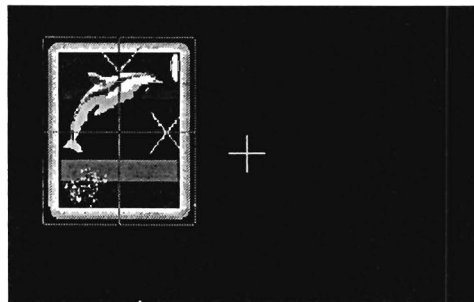


Figure 5.2 Screen in Perspective Mode

The cross-hair on your brush is there to help you see the brush rotations and position the brush when it changes sizes. An important feature of the cross-hair is that it indicates the X and Y axes of the brush. The Z axis of the brush runs perpendicular to the other two axes, just like the screen's Z axis. Figure 5.3 shows the Brush axis system.

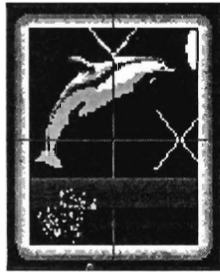


Figure 5.3 *Brush cross-hair and coordinate system*

To rotate the brush you use the numeric keypad on your keyboard. Figure 5.4 shows how each of the keys rotates the brush.

	-1°	+1°	Reset
X rotations	7	8	9
Y rotations	4	5	6
Z rotations	1	2	3
Reset all rotations	0		
Place center	.		
FillScreen	-		

Figure 5.4 *Brush rotations mapped to the keypad*

We'll try each of the rotations in the next few steps so you get a feel for 3D rotations. We'll start off with the simplest rotation, that is, a rotation on the Z axis with the brush in its normal 0,0,0 orientation. This is the simplest rotation, because no part of the brush moves off the plane of your computer screen.

- Hold down the 2 key on the keypad.

The brush disappears and the frame rotates clockwise on its center (the position of the pointer). Notice that the third number along the right side



of the menu bar increases as the rotation angles increase. Figure 5.5 illustrates rotation on the Z axis.

- Hold down the 1 key on the keypad until the numbers along the right side of the title bar show 0, 0, 0 as the brush rotation.

When the brush is back to the 0, 0, 0 position, it reappears inside the frame. This is a handy visual cue that the brush is at its original orientation. Later, when you begin moving the brush in three-dimensional space, you'll see that the same rule applies to movement — if the brush is back on its original plane it reappears inside the frame.

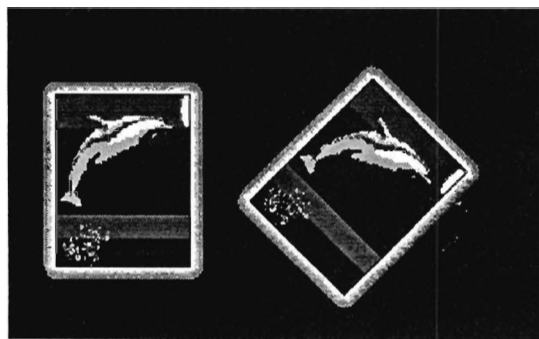


Figure 5.5 *Brush Rotation on Z Axis*

Rotating on the other axes works just like rotating on Z, but when you rotate on the other axes, the brush moves off the plane of the screen and into the third dimension. Let's see how this works by rotating on X.

- Move the brush to the lower left corner of the screen. Hold down the 7 key on the keypad. When the brush frame has rotated to about -45° , release the 7 key and click the left mouse button to paint the brush.

As you rotate the brush counter-clockwise on the X axis, it appears as though the top half of the brush is turning into the screen and the bottom half is turning outward. As a result, your painted brush is set at an angle to the screen as shown in Figure 5.6.



Figure 5.6 *Brush Rotation on the X Axis*

RESETTING THE BRUSH ROTATION

- To return your brush to its original orientation, press 0 on the keypad.

The last step introduced an important keystroke. Any time you need to reset the brush to its original orientation of 0,0,0, press the 0 key on the keypad. If you get lost in the world of 3D, you can always get back to the beginning with this simple keystroke.

THE ANGLE STEP

To rotate on the Y axis, you use the 4 and 5 keys on the keypad, but this time we'll use the Shift key to rotate by a larger increment.

- Move your brush to the lower right corner of the screen. Hold down the Shift key and press the 4 key on the keypad. (Your brush instantly rotates -90° on the Y axis.) Click the left mouse button to paint the brush.
- Press 0 on the keypad to return the brush to its original orientation.

When you use the Shift key with one of the keypad keys, the brush rotates by the Angle Step. The default Angle Step is 90°, but you can change it to any angle you like in the Perspective requester. Figure 5.7 shows the Perspective requester. To display this requester choose Perspective>Settings from the Effect menu or click on the Grid tool with the right mouse button while you are in Perspective mode.



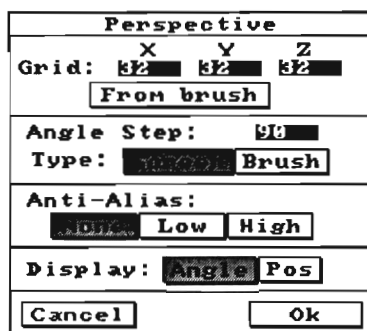


Figure 5.7 *Perspective requester*

ROTATION AROUND THE HANDLE

When you rotate a brush in Perspective, the rotation always occurs around the brush handle. In the preceding examples, you always held the brush from the center, so the rotations always occurred around the center of the brush. Let's look at the difference between rotation around the center and rotation around the corner of the brush.

- Click CLR to clear the screen. Position the brush near the middle of the screen. Hold down the Shift key and press the 2 key on the keypad to rotate 90° on the Z axis. Press Shift-Keypad 2 three more times to set the brush back to 0,0,0.

You've seen this rotation before, but we had you repeat it to compare this with rotation around the corner.

- Keep the brush in the same location. Press Alt-x on the keyboard.

This moves the brush so that it is held by the lower right corner. You can also do this by choosing Handle>Corner from the Brush menu.

- Press Shift-Keypad 2 to rotate the brush around the new handle position.

Figure 5.8 illustrates the difference between rotation around the center and rotation about the corner.

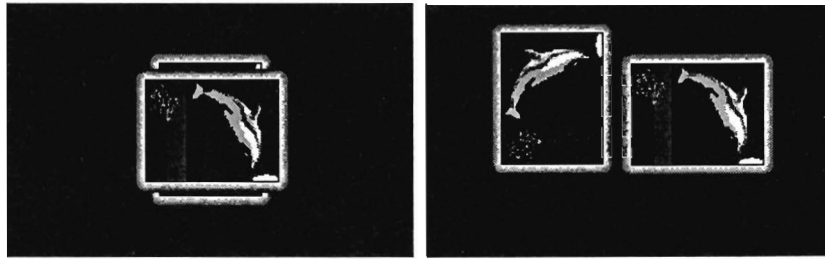


Figure 5.8 *Rotating a brush with the handle at the center and at the corner of the brush*

SCREEN VERSUS BRUSH COORDINATES

So far in our discussion of brush rotations, we've always rotated the brush on one of the two possible coordinate systems. If you look back to Figure 5.7, you'll see that below Angle Step in the Perspective requester there is an item labeled Type with two buttons: Screen and Brush. We've been rotating in the Screen coordinate system. (If you are familiar with rotation systems, you recognize this system as Euler—pronounced “oiler”—angles.) In the next few paragraphs and steps, we'll demonstrate the difference between the two rotation systems.

- To begin this brief example, make sure your screen is clear; choose Handle>Center from the Brush menu; and press Keypad 0 to reset your brush to its original orientation.

To make this example clearer, it will help if the Angle Step is set to something other than 90°. In the next step we'll have you change it to 45°.

- Choose Perspective>Settings from the Effect menu (or click the Grid tool with the right mouse button.) In the Perspective requester, click in the right side of the Angle Step edit field, backspace to erase the 90 setting and type 45. Click Ok to close the requester and use the new setting.

Now let's try a rotation in the screen coordinate system:

- Position your brush in the lower left corner of the screen. Press Shift-Keypad 2 to rotate 45° on the Z axis. Now press Shift-Keypad 7 to rotate -45° on the X axis. Click the left mouse button to paint the brush down.



Notice that when you rotated the brush on the X axis, the axis used was that of the Screen. The brush's X axis was tilted sideways, but the brush still rotated backward into the screen. Also notice that the rotation angles appear in the menu bar.

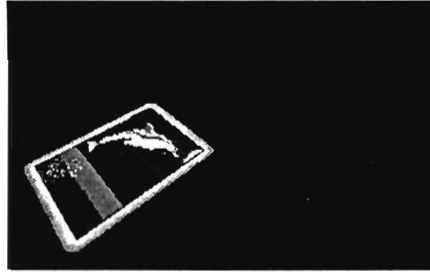


Figure 5.9 *Rotating the brush 45° on Z and X in Screen coordinates*

Now we'll change the setting to Brush angles and do the same rotation to see the difference.

- Click the Grid tool with the right mouse button to display the Perspective requester. Click the button labeled Brush and click Ok.
- Press Keypad 0 to reset your brush to its original orientation.
- Position the brush in the lower right corner of the screen. Press Shift-Keypad 2 to rotate 45° on the Z axis. Now press Shift-Keypad 7 to rotate -45° on the X axis. Click the left mouse button to paint the brush down.

In the Brush coordinates system, rotations always take place about the brush axes, regardless of the current orientation of the brush. In this example, the X axis was positioned diagonally after you rotated 45° on the Z axis; as a result, the brush rotated on the diagonal axis instead of rotating straight backward into the screen.

You'll also notice that the angles shown in the Menu Bar are not the angles that you rotated. The Menu Bar always shows the rotation angles for the *Screen* coordinate system. This allows you to reproduce your brush rotation by switching to Screen angles and rotating the amounts indicated in the Menu Bar.

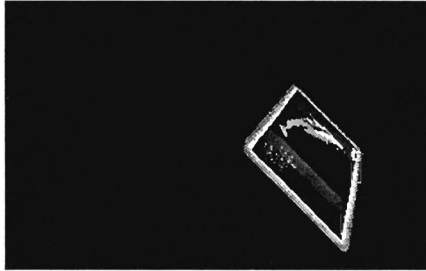


Figure 5.10 *Rotating the brush 45° on Z and X in Brush coordinates*

DeluxePaint offers both Screen and Brush coordinate systems for rotation, because each of the systems has unique merits:

The Screen coordinates system is often consistent with the notion of the three screen coordinates defining the 3D space. More importantly, the Screen coordinates system is reproducible: you can jot down the rotation numbers in the Menu Bar and reproduce the same brush orientation simply by rotating to the same angles. The results of multiple rotations are the same no matter what order you rotate in.

The Brush coordinates system is usually easier to visualize if you are rotating at angles other than 90°. So you can usually produce the desired brush orientation without much difficulty. Unfortunately, the cumulative effect of separate rotations on the brush axes are not reproducible unless you make the exact same rotations in the exact same order. You'll notice that the angles given in the Menu Bar when you rotate using the Brush coordinates are actually the angles for the Screen coordinates system; this is so you will be able to reproduce your brush rotation, though you will have to use Screen angles to do it.

Now that you've seen how to rotate your brush in three dimensions, the next section will show you the ins and outs of moving a brush around in all three dimensions.



MOVING IN 3D SPACE

Before you begin this section:

- Clear the screen. Choose Perspective>Reset from the Effect menu to reset all perspective settings, *including* Angle Type, to their defaults. Load the brush named Blockbrush on the Art disk. Choose Change Color>Use Brush Palette from the Picture menu. Make sure you are in Perspective mode.

MOVING ON THE Z AXIS

When your brush is in its original orientation (0, 0, 0), moving your mouse moves your brush along the X and Y axes. Try it right now:

- Move your mouse forward and watch how your brush moves up on the screen. Move your mouse backward and your brush moves down on the screen. Likewise, moving the mouse left or right moves the brush left or right.

Because your mouse can move in only two dimensions (the third direction would require you to lift it off the desk), it can move your brush in only two directions. You can move your brush in the third dimension by using the keyboard. One method is to move the brush straight back along the Z axis only:

- Position your brush in the lower left corner of the screen, hold down the Shift key and press the quote key (") several times.

Each time you press Shift-", the brush moves backward along the Z axis. It appears as though the brush is getting smaller, but in fact it is moving away from the front of the screen. To move the brush forward along the Z axis, you use the colon key (:).

- Hold down the Shift key and press the colon key (:) once.

Notice that the " and : keys move the brush toward and away from the cross-hair in the middle of the screen. This cross-hair defines the Perspective Center, which is best thought of as the point of view. No matter where you place the brush on the screen, if you move the brush

using the quote key, the brush will move into the distance and toward the Perspective Center.

When you use Perspective, you'll often want to move your brush backwards and left and right along a plane. The effect is of a brush moving across the floor. DeluxePaint lets you do this by holding down the Ctrl key while in Perspective.

- Press Keypad-0 to reset your brush to its original orientation. Position the brush near the bottom of the screen, hold down the Ctrl key and move your mouse forward and backward.

With the Ctrl key held down, when you move the mouse forward, the brush moves away along the Z axis. In this way, you can easily move in the X and Z axes instead of the usual X and Y axes.

3D COORDINATES

DeluxePaint III lets you see the position of your brush in three dimensional space when you are in Perspective mode. This is useful if you need to align your brush precisely.

- Press the \ key and look at what happens to the angles in the right side of the Menu Bar. Now hold down the Ctrl key and move the mouse forward and backward.

Pressing the \ key toggles the Display option in the Perspective requester between Angle and Pos (position) (see Figure 5.7).

- Press the \ key again to return to displaying angles in the Menu Bar.

LAYING DOWN THE BRUSH TO MOVE IN 3D

Another way to move into the distance is to lay the brush down and then move it on its own Y axis. Rotating the brush 90° on its X axis makes the brush's Y axis act like the screen's Z axis. Figure 5.11 shows what happens to the different axes during perspective rotation.



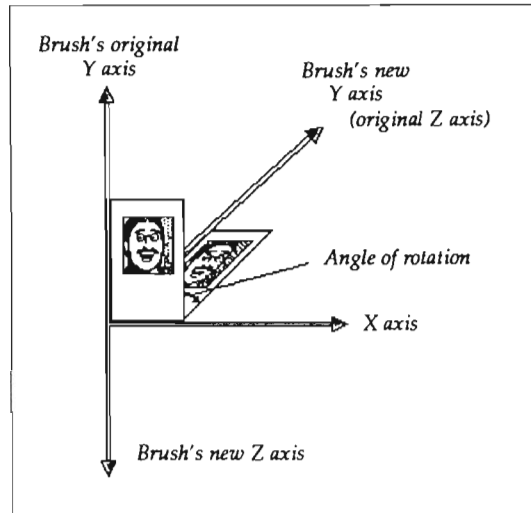


Figure 5.11 *Brush coordinate system before and after rotation*

Let's try it once to see how it works.

- Press Keypad-0 to reset the brush to its original orientation and position the brush in the lower left corner of the screen.
- Press Shift Keypad-7 to flop the brush down into the screen. Now move the mouse around.

You will quickly discover that moving the mouse forward and backward moves the brush into the screen and back out instead of up and down. This is because the mouse moves the brush on the plane defined by the brush's X and Y coordinates.

- Move the brush to any new position and press Shift Keypad-8 to turn it back up on end. Paint the brush down. Use the combination of Keypad-7 and Keypad-8 several times until you are comfortable with how these keys help you move in the third dimension.

THE PERSPECTIVE PLANE

You might have noticed that when you flopped the brush down by rotating on its X axis, the brush moved on a plane below the perspective center. Remember that when the brush is in its original 0,0,0 orientation, it moves on a plane that is roughly the equivalent of the computer screen. When you rotate the brush, you change the orientation of the plane. The plane can be at almost any angle to perspective center. The easiest way to see this is to fill the perspective plane you've defined.

- Press Keypad-0 to reset your brush. Position the brush so that your cursor is at the bottom of the screen, press Shift Keypad-7 to rotate the brush on the X axis. Choose Perspective>FillScreen from the Effect menu and watch as DeluxePaint fills the perspective plane with a pattern of your brush.

The results of this last step should look something like Figure 5.12.

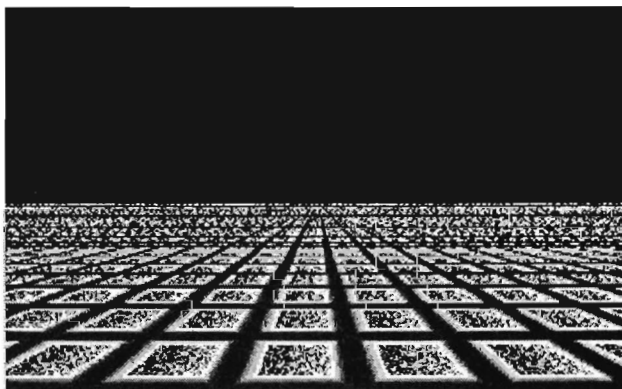


Figure 5.12 *Perspective plane painted using Perspective>FillScreen*

As we said, you can set your perspective plane at almost any angle to the perspective center. In the next step, we'll draw a plane to the right of center with the brush rotated sideways. This will create a "wall" on the right.



- Press Keypad-0 to reset your brush to its original orientation. Place the brush in the lower right corner of the screen. Press Shift-Keypad-4 to turn the brush into the screen. Choose Perspective>FillScreen from the Effect menu.

Practice creating different planes. For example, position the brush above perspective center to create a “ceiling” from your brush.

THE PERSPECTIVE HORIZON

The position of perspective center plays an important role in determining the angle of the plane to the viewer. It also determines the horizon point. The horizon point is the farthest edge of the plane when you rotate a brush to 90°. To demonstrate how this works, we'll load a picture that has a horizon, and fill the plane out to the horizon.

- Load the picture Seascape from the Tutorial drawer on the Art disk and choose Change Color>Default Palette from the Picture menu.

You might remember this picture from the Guided Tour. In the picture, the ocean stretches to a flat horizon on the right side. We'll set our perspective center in line with this horizon and then fill a perspective plane.

- Choose Perspective>Center from the Effect menu. (Your cursor changes to a large cross-hair.) Position the cross-hair so that it is half way across the screen and so the horizontal line of the cross-hair lines up with exactly the horizon in the picture. Click the left mouse button to place the perspective center.
- Now, load your Blockbrush brush; enter Perspective mode, Press Shift Keypad-7 to rotate your brush -90°; and choose Perspective>FillScreen from the Effects menu to fill the perspective plane.

When you are done, your screen should look like Figure 5.13. Notice that the horizon of your perspective plane exactly matches the horizon of the original picture.



Figure 5.13 *Seascape with a perspective plane added*

THE ANGLE OF THE PLANE

In the example above, the perspective plane matches the horizon because you rotated the brush by 90° . If you had rotated by more than 90° the plane would not reach the horizon, as though the plane sloped downward. If you had rotated by less than 90° , the plane would extend above the horizon, as though it sloped upward like a mountain. It is difficult to see the differences unless you have an existing horizon to compare the plane with. Without an existing horizon, the sloping of the plane will appear to be only a difference in the distance between the position of the brush and the perspective center when the brush was rotated.

When you create a perspective plane, the position and angle of the plane are determined by three things:

- ☐ the position of Perspective Center;
- ☐ the position of the brush handle (cursor) when you rotate the brush;
- ☐ and the degree of rotation.

In our examples above, we rotated the brush in 90° increments so the plane was always either parallel to our point of view or at a right angle. If you want to create a sloping surface, you do so by rotating the brush to an angle less than 90° . Here's a quick example.



- Choose Perspective>Reset from the Effect menu.
- Position your brush so that the cursor is at the very bottom of the screen. Hold down the 7 key on the keypad until the brush has rotated -60° on the X axis.
- Move the mouse forward and backward to see how the brush moves on this new plane.

You'll notice that the vanishing point of the brush is above the horizon in your picture, this is because the plane is not parallel to the point of view. It is as though you were looking at a gradual incline.

This chapter explained almost every aspect of Perspective in DeluxePaint. There are a couple of items we didn't cover here but did include in the tutorial on Perspective in Chapter Six. If you think you will be using DeluxePaint's perspective features, be sure to work through that tutorial. You'll learn some very important hints there.





NOTES



This chapter is a series of exercises that introduce you to some of the more powerful features of DeluxePaint. By working through this chapter, you'll learn how to:

- ☐ Modify your color palette
- ☐ Create color spreads and ranges
- ☐ Animate with color cycling
- ☐ Manipulate your brush for special effects
- ☐ Use Stencil and Fixed Background techniques
- ☐ Create Perspective art

You don't need to work through all of the tutorials. Each of the four tutorials begins with a summary of what you'll be doing, so you can choose to complete only the tutorials that interest you. Of course, we recommend that you complete them all if you want to become a DeluxePaint power-user.

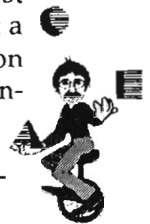
BEFORE YOU BEGIN

Make sure that you have everything you'll need for the exercises:

- ☐ You'll need your DeluxePaint art disk. The special files and artwork you'll be using in the following tutorials are stored in the Brush or Lo-res drawers, as appropriate.
- ☐ If you want to save your work, you'll need a supply of initialized disks.
- ☐ If you want to make printouts of your work, you'll need a color printer plugged in and ready to go.

TUTORIAL ONE: MODIFYING THE COLOR PALETTE

Proficiency with DeluxePaint's color control is one of the most important skills you can learn. Because every work of art is little more than the colors and shapes that comprise it, a carefully chosen palette is the first step to any masterpiece. In the following exercises, you will look at a Reference Palette and then modify it to give you just the color selection you need for each project. You should use the Reference Palette when-



ever you need to adjust your monitor or color printer. You'll see how to do this at the end of this exercise.

A REFERENCE PALETTE

The Amiga can generate 4096 distinguishable colors, 32 of which are available at any one time in Low Resolution screen format. You can create your own 32-color palette through the Color Palette requester.

- Display the Color Palette requester by choosing Change Color>Palette from the Picture menu.

You also can display the Color Palette requester by clicking the Color Indicator (above the palette at the bottom right of the screen) with the right mouse button, or by pressing **p** on the keyboard.

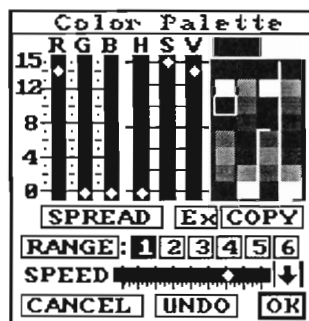


Figure 6.1 *The Color Palette requester*

Take a moment to examine the Color Palette requester. It consists of six vertical sliders for mixing colors, a palette area with a box at the top showing the currently selected color, and a collection of command buttons. To find out more about these commands, refer to the section on the Color Palette in Chapter Four: The Elements. In this exercise, you'll be looking at the Reference Palette to learn how DeluxePaint mixes red, green, and blue to form other colors. You'll also see the relationship between the RGB and HSV (hue, saturation, value) color systems.

- Close the Color Palette requester by clicking Cancel. Choose Load from the Picture menu and load the picture named Reference Palette from the Tutorial drawer in the Lo-Res drawer of your Art disk.

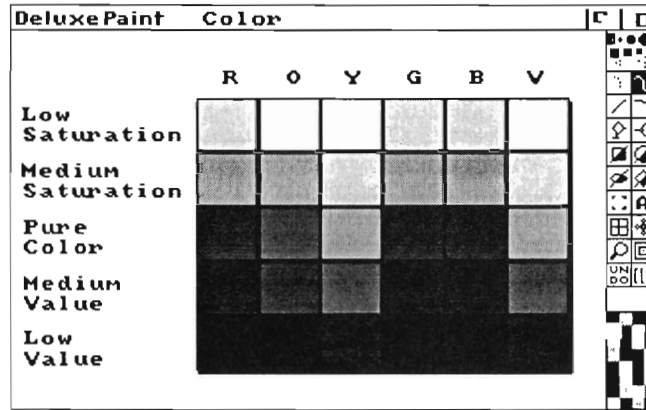


Figure 6.2 *The Reference Palette picture*

The Reference Palette picture shows you a matrix of the colors in the color spectrum: Red, Orange, Yellow, Green, Blue, and Violet. These are the colors that are produced when you mix colored pigment. In effect, these are the colors a traditional painter would work with. This is not the spectrum produced when you mix colored light. That spectrum produces the colors Red, Yellow, Green, Cyan, Blue, and Magenta.

- Display the Color Palette requester. Drag the Color Palette to the lower right corner of the screen. (To do this, you point to the title bar of the requester, hold down the left mouse button, and drag the mouse.)

Now let's look at the RGB and HSV values of some of the colors in the Reference Palette.

- Click on the red square in the row labeled Pure Color and look at the sliders in the Color Palette.

In RGB terms, your Color Palette shows that a pure red is all red color with no green or blue. In HSV terms, pure red is hue 0 with full saturation and full value. You might remember from Chapter Four that



saturation is the relative amount of color to white, and value is the relative lightness or darkness of a color. Value is often referred to as Luminosity. To see exactly what this means, let's change the sliders a bit.

- Drag the saturation (S) slider all the way down to the bottom to see what happens to the color. Drag the saturation slider back up to the top. Now drag the value (V) slider all the way to the bottom.

As you drag the saturation slider down, the red gets lighter until it is white. As you drag the value slider downward, the red gets darker until it is black. Regardless of the hue or saturation, a value of zero always produces black.

The meaning of the saturation and value sliders is exactly what the matrix in the Reference Palette shows. Notice that the colors in the Low Saturation row are all pale — they don't contain much color. The colors in the Low Value row are dark — they don't contain much luminosity. The colors in the Pure Color row contain full saturation and full value.

Hue simply refers to the position of a color on the color spectrum or rainbow — Red, Yellow, Green, Cyan, Blue, or Magenta, and the various shades in between. Figure 6.3 shows the the positions of colors on the Color Wheel.

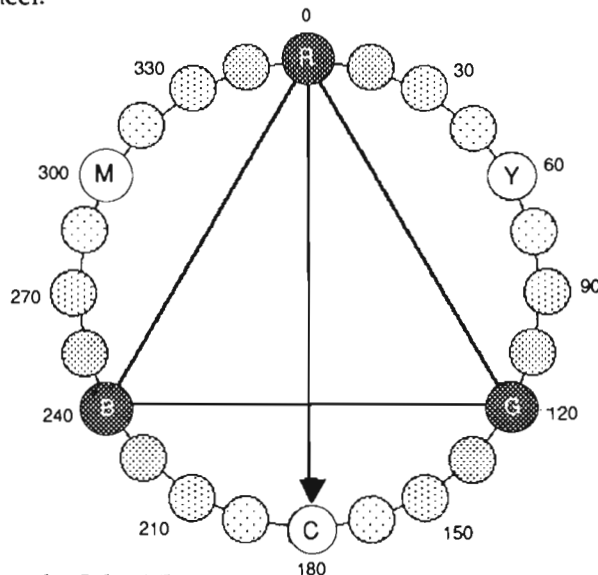


Figure 6.3 *The Color Wheel*

Let's look at another color in the Reference Palette.

- Click on the yellow square in the Pure Color row.

The RGB sliders show that yellow contains the maximum amount of red and green, but no blue. Yellow is said to be the “complement” of blue. Each of the primary colors has a complement. In the RGB color system, the relationship of the primary colors and their complements are best thought of as a cube in which each dimension is measured in one of the three primary colors, as shown in Figure 6.4. The complement of each primary color is positioned at the opposite corner of the cube. Thus, moving downward on the edge of the cube to add red to green produces yellow (R15, G15, B0) the complement of blue, which is positioned at the opposite corner from blue. If you look back at Figure 6.3 you'll see that in the HSV color system, the complements are also directly across the circle from the primary color — yellow is directly across the wheel from blue.

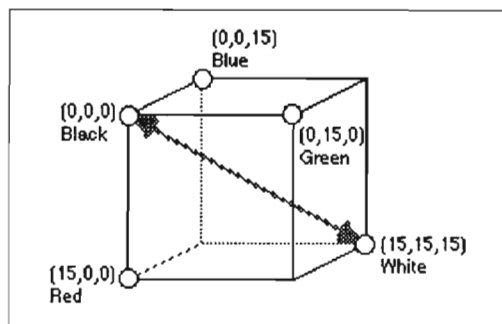


Figure 6.4 *The RGB color cube*

Notice that black is the absence of color (R0, G0, B0) and white is the maximum level of the three colors (R15, G15, B15). The line running diagonally through the center of the cube from black to white shows the positions of the grays, which are formed by combining equal amounts of red, green, and blue. Thus R8, G8, B8 would yield a medium gray. Let's try this in practice:

- In the Color Palette, drag each of the RGB sliders to 8. Once all three primary colors are at 8, you have medium gray.



Look at the position of the value slider in your Color Palette; it is at the same level as the red, green, and blue sliders. The mixing of grays is one area where the HSV system excels. Rather than moving all of the RGB sliders to the same position, you can simply drag the saturation slider to the bottom and move the value slider to the level of gray you want. The position of the hue slider will have no effect, because there is no color (no saturation) in gray.

- Move the hue slider up and down and notice how the gray you produced doesn't change. Now move the value slider up and down and notice how the RGB sliders move along with it, always staying in a perfect line.

Can you change the color back to yellow? Remember, yellow is the complement of blue.

- Move the red (R) and green (G) sliders all the way to the top and move the blue(B) slider all the way to the bottom.

Now that you know the basics, try mixing a few colors you like using either one of the two color mixing systems. Here's a trick you might also consider: mix a few palettes that you particularly like and save small brushes created with those palettes. The palette is saved with the brush file, and you can then automatically produce that palette by loading the appropriate brush and choosing Change Color>Use Brush Palette from the Picture menu.

Before we leave the topic of color mixing, let us just summarize a few important points:

- Your Amiga and DeluxePaint mix colors using the RGB system, and this system is represented by the color cube.
- If you want to find any pure color, you can do so using the HSV system by moving the saturation and value sliders to the top and then scrolling the hue slider until you find the color you want.
- If you need to produce a gray, you can do so by setting all three of the RGB colors to the same level, or by setting the saturation slider to the bottom and adjusting the value slider to the gray level you want.

Besides providing an example spectrum for our color mixing tutorial, the Reference Palette is useful for adjusting your monitor. Print out a copy of the picture on your color printer and adjust your monitor until the colors on your screen look the same as those on the paper.

CREATING COLOR SPREADS AND RANGES

As you have probably realized by now, DeluxePaint has many advantages over most standard media. Variable magnification, instant “undoing,” and the vast power of DeluxePaint’s brushes have no counterpart in the world of paper, paint, and ink. For example, where once a smooth, gradual fade from one color to another required laborious work with an airbrush, DeluxePaint’s Gradient Fill does it all in seconds. Some of these more advanced features, however, require that you set up your color palette in a certain way to achieve optimum effect. This exercise will teach you how to get the most out of the Spread and Range commands to arrange your palette. In addition, you will create a new palette for the following exercise, “Animation with Color Cycling.”

- First, clear the screen, and then select Change Color>Default Palette from the Picture menu. Display the Palette requester by clicking the Color Indicator with the right button or by typing **p** on the keyboard.

Now make the following modifications to the palette:

- If it isn’t already black, click on the first color and set it to black either by moving the V slider to the bottom, or by moving each of the R, G, and B sliders to the bottom. Next, with the first color still selected, click with the left button on Copy and then click the last color in that column (Color 8).

You have just copied the first color onto the last color in that column. This means that both the first and the last colors in the first column are black. Next we’ll make Colors 3 through 8 black:

- Click Copy, and then click Color 3 to make Color 3 black. Now click Spread and then click Color 8.



You have just turned all the colors in the first column black except Color 2. If you were to turn Color 2 black as well, you would lose your Color Palette requester, because DeluxePaint uses Colors 1 and 2 for painting its menus and requesters. Although DeluxePaint gives you the freedom to modify any of the colors in the palette, you should be particularly careful when modifying Colors 1 and 2 for this reason. If you ever make Colors 1 and 2 the same color, and you lose your Color Palette requester (it will still be there, but you won't be able to see it), press the **u** (for Undo) key to reinstate the previous condition. Alternatively, you can press the Help key to return Colors 1 and 2 to their default values.

- Select Color 2 and make it pure white by moving all three R, G, and B sliders to the top. Now click Spread with the left button, and then click on Color 8, at the bottom of the first column, to create a spectrum that starts with white at the top and ranges through grey to black at the bottom.

Select Color 9 (at the top of the second column), and set it to pure red by setting the R slider at the top, and the G and B sliders at the bottom. Next, make Color 14 yellow (maximum R and G, no B) and Color 19 blue (maximum B, zero R and G). Finally, set Color 24 (the one at the bottom of third row) to the same pure red you started with.

The pure red, yellow, and blue colors define the range of hues that will be included in your palette. Now let's fill in the intermediate colors:

- Click Color 9 (the first red, at the top of second column), click Spread, and then click Color 14 (yellow).

The four colors between pure red and pure yellow are now a range of oranges.

- Repeat this procedure, this time starting with Color 14 and ending at Color 19 (blue), to give you a range of greens and blue-greens. One more spread, from Color 19 to the last red (Color 24, at the bottom of the third column) gives you shades ranging from blue through violet, and back to red.

Now you have a full rainbow of colors for your palette, as well as a selection of greys in the first column. Next we'll see how to get more subtle tints and shadings of a specific color:

- Set Color 25 (at the top of the last column) to pure white. Four colors down the column, at Color 29, create pure blue (B slider all the way to the top, R and G at zero). Select the white at the top of the column, click Spread, and then select the blue. Finally, set Color 32 to black, and create a spread from Color 29 to Color 32 to give you a set of blues varying in saturation and value.

You can use this same technique to create tonal ranges for different colors. Try creating sample tonal ranges for reds and greens. When you create a palette for your pictures, you might consider reserving the last column for tonal ranges involving a single hue, and the first column for shades of grey.

We've just seen how to set up our color palette using the Spread command. However, to use Gradient Fill and Color Cycling (as well as Shade and Blend, see *The Painting Modes in Chapter Two*), you have to define color *ranges* to let DeluxePaint know which set of colors to use. You can define up to six ranges at one time, one for each range button. Here's how:

- Click the 1 button beside Range to define the first range. Select Color 2 (white), click Range, and then select Color 8 (the black at the bottom of the first column). A thin white line identifies your newly defined color range.

Now click 2, select Color 9, click Range, and select Color 24, at the bottom of the third column. Click 3, select Color 25, click Range, and then select Color 32.

You have now defined three color ranges:

- 1: Seven shades from Color 2 to Color 8
- 2: Sixteen shades from Color 9 to Color 24
- 3: Eight shades from Color 25 to Color 32

As you click on 1, 2, or 3, you can see each range bordered by a thin white line next to its set of colors.



GRADIENT FILLS

Now that you've defined a set of ranges, let's try an experiment with DeluxePaint's Gradient Fill feature. Gradient Fill lets you fill any outline with a range of colors that gradually fade from one to the next. Here's how:

- Click OK to leave the Color Palette requester. Now display the Fill Type requester by clicking on the Filled Rectangle tool with the right mouse button. Select Vertical Fill , set the Dither slider all the way to the left, and click OK to return to the painting area. (Dither is the amount of mixing that occurs between the colors in the range.)
- Now click the Filled Rectangle tool (click the bottom right part of the icon) with the left mouse button, and select any color in the first range (Colors 2 through 8).

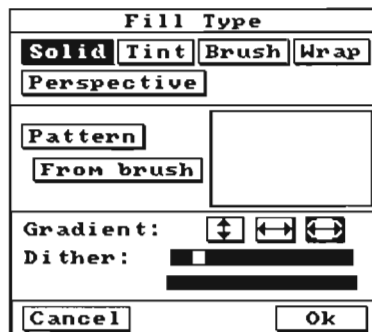


Figure 6.5 *Fill Type requester*

Note that as soon as you click a color in one of your three ranges, the small rectangle on the Menu Bar gives you a preview of the gradient fill. Try clicking colors within the different ranges and watch it change. As soon as you are ready to move on, click one of the colors in the first range.

- Draw a rectangle using the left mouse button. Note that the shape gradually fills with a banded, metallic shading effect. Display the Fill Type requester again and set the Dither slider about halfway on the scale. Click OK and then draw a second rectangle. This time you'll see the shades of grey blend from one to the other, without clear lines between them.

Now that you have the basics down, try experimenting with different settings. Display the Fill Type requester again and set it to Horizontal Fill by clicking the middle of the three Gradient boxes. Draw some circles with this kind of gradient fill. Now try Horizontal Line Fill (the box on the far right with rounded corners), and make a series of realistic spheres. Horizontal Line Fill calculates the distance between the left and right borders of a figure and fills each horizontal line independently, so that each line receives the full complement of the gradient fill. Try drawing diamond shapes with the Filled Polygon tool using both types of horizontal fill, and see how it makes a difference. And don't forget that you have two other ranges to play with. Select a color from one of the other ranges you created and experiment with ovals, rectangles, and polygons. Note that you can change the order of the gradient fill by clicking the cycling direction arrow at the bottom right of the Color Palette requester.

ANIMATION WITH COLOR CYCLING

Most animation effects are created by displaying a series of drawings in rapid sequence. Animation with color cycling uses a slightly different technique: the illusion of motion is created not by changing images, but by rapidly changing the colors within a static image.

- Load the six color cycling brushes, Cycle1 through Cycle6, and stamp a copy of each one (click the left mouse button) around the page. You will find these brushes in the Brush drawer. Select Use Brush Palette from the Color Control option of the Picture menu to use the same palette the brushes were created with.
- Press **F10** to hide the Menu Bar and the Toolbox. (You can bring them back by pressing **F10** a second time). Activate color cycling by selecting Cycle from the Color Control option of the Picture menu, or by pressing the Tab key. Pressing Tab a second time stops the animation.

All of the animations were created with the same palette with 4 designated ranges. In a minute we'll look at how the ranges were defined. Here's how each animation works:



1. The Glowing Balls The first ball was drawn in white, the second in grey, and the third in black. As the colors cycle, the balls change color from white through grey to black, and then start as white again. Because each ball started off at a different color in the range, the balls are out of synch.

2. The Color Wheel The wheel was drawn with lines radiating out from the center. Each line's color is one shade away from the lines next to it. As the colors cycle, the wheel appears to spin.

3. The Bouncing Ball Each position of the ball was drawn in a different color from the third range. Because five of the six colors in this range are black, only one frame shows at a time, as the remaining five are invisible against the black background. Change the black colors in this range to any non-black color to see all the frames.

4. The Running Man This was done in exactly the same way as the Bouncing Ball. Notice how the frames overlap slightly.

5. Falling Snow This was done in the same way as 3 and 4 above.

6. Marquee This effect was created with only the 2 colors from range 4. In fact, the "light bulbs" are only flashing on and off. The viewer imagines the motion, just as he does with a real movie marquee.

- Display the Color Palette requester, and click on each of the first four range buttons to see which colors are in each range.

Now play with the animation speed of each range by first clicking each of the four channels, and then moving the slider under the channel selectors. To the left is slower, and to the right is faster. If you hold down the mouse button on the slider, you can get a preview of the cycling speed on the screen. You can also change the direction of the cycling by clicking the arrow at the lower right of the requester.

TUTORIAL TWO: LOGOS UNLIMITED

In this series of tutorials we will take a relatively plain corporate logo and spice it up with some of DeluxePaint's tools. We have provided the original logo for you so you won't need to start from scratch. All you need to do is embellish it by following the step-by-step instructions. First, however, you will need to load the original logo, which has been saved as a brush in the Brush drawer of your DeluxePaint Art disk.

- From the Brush menu, select Load; select the file Archbrush, and click Load.
- When the brush has finished loading, choose Change Color>Use Brush Palette from the Picture menu to use the same palette the brush was created with.
- Finally, to provide some contrast to the logo, select a light shade (white or light grey) for the background with the right mouse button and click CLR.

ITALICIZE

Let's begin by italicizing the logo. DeluxePaint lets you tilt any image, whether text or graphics, just by making a menu selection. Here's how:

- Select Rotate>Shear from the Brush menu. Now move the brush onto the screen, and, while holding the left mouse button down, move the mouse horizontally to the left. When you are satisfied with the slope of the letters, release the button.

Shear anchors the top part of any image, and allows you to stretch the bottom part horizontally in either direction. If you are doing this with text (as we did above), you can italicize letters to any angle you wish.

- Click the left mouse button to place a copy of this new brush on the screen.



BEND

This time, we'll bend the logo either vertically or horizontally. Although you are free to compound these effects (that is, you can bend an image that has already been italicized), let's start with the original brush again so we can see what effect bending has by itself.

- To restore the original brush, click the Brush Selector icon in the Toolbox with the right button.

Clicking the Brush Selector with the right mouse button restores the brush to its immediately preceding state. (If you modify a brush more than once, you cannot restore it to its *original* state using this technique — you would need to load the brush again.) Now bend the brush as follows:

- From the Brush menu, select Bend>Horiz. Move the brush, which now has a rectangular frame around it, to the center of the screen and, while holding the left button down, drag the frame horizontally to the left or right.

When you release the button, you will see that the brush now has a new shape.

- Click the left button to place an image of the new brush on the screen.

Try this technique again, this time using the Vert option. With this option you will need to drag the mouse up or down as you bend the brush. When you are satisfied with the new shape, click the left mouse button to place an image on the screen. If you like, you can place the new brush alongside the original one.

RESIZE

In this exercise we'll resize the brush. Reload the original brush (Archbrush) and then follow these steps:

- Select Size>Stretch from the Brush menu. Now as you move the brush back onto the screen, you will notice that your cursor has

changed to the word **SIZE**. While holding down the left mouse button, drag the mouse diagonally. Drag it down and to the right to stretch it, and up and to the left to shrink it. When you are satisfied with the new size, release the button.

If you want to resize the brush in proportion to the original — that is, keeping the original ratio of height to width — press the **Shift** key before you start dragging the mouse, and hold it down as you drag. By constraining the change in this way, you can resize the image in direct proportion to the original.

Note, also, that if you try to make a brush larger than the available memory can handle, the brush will snap back to its starting size and shape.

CHANGING COLORS

In this exercise, we will change the colors of the original brush — red and grey on a black background — to a new set of colors. After reloading the brush, click with the left mouse button to place an image of the brush on the page. Here's how to change the brush's colors:

- Select a medium blue shade from the Palette with the left mouse button. This is your new foreground color, soon to be the new brush color.
- Next, select the red of the original brush as the background color. You can do this using either of two techniques:
 - you can select the red by clicking the right mouse button on that color in the Palette; or,
 - you can click inside the Color Indicator with the left mouse button to change your cursor into a pointer with the word **PICK** attached to it. Now when you click on any screen color with the right mouse button, that color will become the new background color.

Because it can convert your entire painting area into a palette, this technique of clicking the Color Indicator to select any screen color as the new foreground or background color is particularly useful. Note that it



works with either the left or the right mouse button. Whatever color you click with the left button becomes the foreground color, and whatever color you click with the right button becomes the background color. (You may find the keyboard equivalent even more useful: press the comma key to change your cursor into a PICK pointer, and then click on any of the screen colors as before.)

The next step is to switch the foreground and background colors, so that every pixel of the current background color (red) in the brush will change to the current foreground color (blue):

- From the Brush menu, select Change Color from the primary menu and Bg -> Fg from the secondary menu.

Notice that selecting Bg -> Fg changed the red parts of the brush to blue. If you had an original brush that contained both red and blue, you could make the changes work in both directions by selecting Bg <-> Fg. This would change all the red parts of the brush to blue, and all the blue parts of the brush to red.

Now that you've seen how easy it is to change colors, you might want to try changing colors on all the brushes you'll be creating in this tutorial.

PATTERN FILL

In this exercise, you'll color the brush image with a pattern rather than a solid color. Here's how:

- Reload the original brush by selecting Load from the Brush menu. When the brush has loaded, place an image of it on the screen by clicking with the left mouse button.
- Load Pattern1 from the Brush drawer.

Your new brush will be a small square with horizontal blue stripes.

- Now click the Fill tool icon (the paint can) with the right mouse button to display the Fill Type requester. Click From Brush. This last action places a copy of the current brush pattern (the one we just loaded) in the requester. Click Pattern, and then OK.

The next step is to use this pattern fill to spice up our logo:

- Place the paint can's spout on the arch graphic, and click with the left mouse button. Repeat until the arch is completely filled with the pattern (two applications should do it).

You might want to do the same thing with the lettering, but this time try creating your own pattern. Create any repeating pattern as a brush and click From Brush in the Fill Type requester to use that brush as your pattern fill.

DROP SHADOWS

In this exercise you'll give your logo a professional touch by adding a *drop shadow*. A drop shadow creates an illusion of depth by putting a dark shadow under an object.

- First, load the original Archbrush, and then select the color you want to use for the shadow with the left mouse button (making it the foreground color). Black and brown are the most appropriate shadow colors, although you can use any color you like.
- Select Color from the Mode menu (or press the F2 key).

The Color command turns a multicolored brush into a solid color, the currently selected foreground color.

- Position the new (solid-colored) brush on the screen and click the left mouse button to place an image of it there.

You have just placed a copy of the logo's shadow on the screen. Now you need to revert to the standard brush so you can place a copy of the logo over the shadow.

- Select Matte from the Mode menu (or press F1) and position the standard brush over the shadow. Offset the standard brush slightly so you can see the shadow underneath it and press the left mouse button.

You have just created a logo with a drop shadow to create the illusion of the logo hovering slightly above the page.



If your Amiga supports Extra-Halfbrite display mode, you might want to try making your drop shadows in the halfbrite colors rather than in a solid color. To do this, you need to change your screen format to 64 colors. Then, follow the steps above, but instead of choosing the Color mode and a dark color for your brush, simply choose Hbrite from the Modes menu. You'll find an explanation of the Hbrite mode under the section on Painting Modes in Chapter Four.

OUTLINING THE LOGO

In this exercise, we will put a different-colored outline around the logo.

- As before, begin by reloading the standard Archbrush.
- Select as your foreground color the color you want to use for the outline. (Choose a color that is not already represented in the logo, as this will make it easier to change it later without affecting the rest of the logo.)
- Select Color from the Mode menu (or press F2).

This turns your multicolored brush into a solid color, the one you chose as your foreground color.

- Select either the Unfilled Rectangle tool (for a squared-off outline) or the Unfilled Circle (for a rounded outline). Move the cross-hair back to the screen and, holding the left mouse button down, drag diagonally up or down. Each pixel you drag the mouse increases the thickness of the outline by that amount. Release the button.

As you have probably noted, the Rectangle and Circle drawing tools paint with the current brush, whether it is a built-in or a custom brush. This lets you create an accurate outline of any shape, just by dragging it the required distance.

- Choose Matte from the Mode menu (or press F1). Position the original brush over the outline and click the left mouse button to place an image there.

You can now pick up your new logo as a brush, and then repeat the same procedure to produce multiple outlines.

THE OUTLINE COMMAND

If you want to place a simple outline around a brush, and you don't care whether or not the outline is rounded or square, DeluxePaint III gives you an easy way to add one. Select the color you want to use for the outline and then choose **Edge>Outline** from the Brush menu. DeluxePaint adds a single pixel outline to your brush.

GRADIENT FILL

One of DeluxePaint's most powerful features is its ability to fill a shape with multicolored gradients. In this exercise you'll see how easy it is to combine the Stencil feature with gradient filled shapes to fill any shape with an even gradient.

- As before, restore or reload the standard Archbrush, and place a copy of it on the screen by clicking the left mouse button.

The next step is to define your gradient range. The grays in the Archbrush palette are already defined as a range, so we'll use that range. Of course, if you like, you can define a range of your own and modify the following steps to fit.

- Click one of the dark grays in the third column of the palette to make that your foreground color.

By choosing a gray that is in the gray range defined in the palette, you can use that range for your gradient fills. Next, you need to tell DeluxePaint to use that color range as a fill type. Here's how:

- Click the Fill tool icon with the right mouse button.

This tells DeluxePaint that you want to customize the icon's effect, and brings up the Fill Type requester. Remember, clicking the drawing tools with the right button lets you customize the respective effects; see *The Tools*, in Chapter Four, above. Now you need to select the variables you want to use for your gradient fill:

- Click Vertical , for fill type, and then drag the Dither slider left or right to create the desired amount of dithering in the gradient. Click OK.



Now you have your gradient ready to fill. We don't want to fill each letter individually because the gradient would not be uniform, so we're going to use a trick. We're going to jump to the Spare page and use a Stencil to fill our text.

- Choose Spare>Swap from the Picture menu to jump to the spare page.
- Click the Brush Selector tool with the right button to restore your Archbrush and paint it down on the blank page.

Now that the area we want to fill is on the page, we'll make a stencil of everything else.

- Choose Stencil>Make from the Effect menu. This displays the Make Stencil requester. Click on the background color on your page to select that as a stencil color. A small bracket appears beside the color in the requester. Click Make in the requester.

Now the background color of your page is stenciled so you can only paint on the Archbrush logo.

- Select the Filled Rectangle tool and drag a rectangle from the upper left corner of the Archbrush logo to the lower right corner.

As you drag the rectangle over the logo, only the logo area is filled, but you might see a faint outline of your rectangle. Just be sure to cover all of the logo. When you release the mouse button, the logo is filled with your gradient smoothly from top to bottom.

- Click the Brush Selector and select the new Archbrush logo as a brush. Press j to jump to the other page and then paint down your brush.

Notice that when you pick up an area with a stencil on, only the unstenciled area is picked up. This is a very powerful feature. The next tutorial will show you all of the ins and outs of stencils, so be sure to read on.

TUTORIAL THREE: THE WORLD OF STENCILS

In the following set of exercises you will learn how to create and use stencils within DeluxePaint III. Although stencils are primarily used for producing quick, uniform lettering by amateur signwriters, they have uses that go far beyond that. Airbrush artists, for example, use stencils (which they call *friskets*) to cover certain areas of their work while they airbrush other areas.

DeluxePaint makes it easy to create a stencil for any part of an image, without the need to redraw the image. All you do is specify the colors that make up the stencil, and DeluxePaint does the rest, even if the image is intricate.

Here's how it works: when you make a stencil for a particular set of colors, you lock (and thus protect) any parts of the picture that are made up of those colors. This means that when you have a stencil for a particular set of colors, you cannot paint over those colors until you turn the stencil off. It also means that you can essentially paint a picture backwards, from the foreground to the background, because you can use stencils to mask any foreground objects from the colors you are using for the background objects.

BEFORE YOU BEGIN

- Choose Load from the Picture menu and load the picture named StencilSet from the Lo-res/Tutorial drawer on the Art disk.

DISTANT SNOWCAPS

The left part of the Stencilset picture shows a distant mountain range behind a green field and under a colorful sky. (If you followed the preceding tutorial, you'll notice that both the sky and the field were created with a Gradient Fill, in a fraction of the time it would take using more traditional techniques.) Note that the mountain range is actually made up of three ranges, with the more distant ones painted in lighter shades than the nearer ones. In this exercise, we will put a snowcap on the most distant range without disturbing any other parts of the picture. This would be a tall order for any other graphic medium, but is surprisingly easy with DeluxePaint. Let's see how DeluxePaint does it:



- Choose Stencil>Make from the Effect menu to display the Make Stencil requester. Click Clear, click on Color 9 (the one at the top of the second column), click Invert, and then click Make.

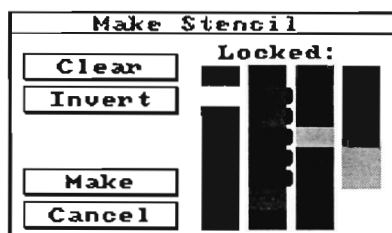


Figure 6.6 *Make Stencil requester*

With four simple clicks of the mouse you have created a stencil that locks every color in the picture except Color 9, the color of the most distant mountain range. The first click cleared the picture of any stencils, the second selected the stencil color, the third click inverted the stencil configuration (making everything except Color 9 a stencil), and the fourth made the stencil. To let you know that you have a stencil active, an "S" appears on the Menu Bar.

Note that clicking Invert simply inverts the current stencil configuration, saving you the trouble of clicking all the colors except the one you want to paint on. This is useful if you want to paint on one or two selected colors to the exclusion of the rest; if you want to create a stencil to lock only one or a few colors, you don't need to use invert.

The next step is to paint the snow on the distant mountain range:

- Select white as the foreground color, and then select the one-pixel brush and the Airbrush tool. Move the cursor over to the distant mountain range and spray a snowcap on it.

Because every color except that of the most distant mountain range has been locked, you can spray without fear of splattering any adjoining colors.

Note that although the white you are spraying on the mountain range is one of the locked colors, it is not itself locked while you are applying it. This means that you can paint over it with another color (such as the original color of the mountain, if you don't like the look of the snowcap) just as though it were unlocked.

To lock a recently applied color, just select Remake from the Stencil sub-menu. You don't need to display the Stencil requester again, because the configuration is still as you want it. This also means that you can use the "Again" key (a) to update your stencil, if Remake was your last menu command.

The Again rule is simple: press a whenever you want to repeat the immediately preceding menu command, to save you moving the mouse up to the Menu Bar and through menu and submenu options. If your last menu command produced a requester, then pressing a will produce that same requester, without the need for menu selections.

SUNRISE IN THE ROCKIES

In this exercise, we make the sun rise *behind* the mountains, so we need to lock every color except the sky. Here's how:

- Display the Make Stencil requester. (Color 9 should be the only unlocked color in the requester.) Now click Color 9 to lock it, and then click Colors 1 (black) and 13 through 18 (the sky colors) to unlock them. (Color 13 is halfway down the second column, and Color 18 is the second from the top of the third column.) Click Make.

You have now locked every color in the landscape except the sky colors. Now let's make the sun rise:

- Choose Stencil>On/Off from the Effect menu to turn the stencil off.

In DeluxePaint III, your stencil affects picking up a brush — you can only pick up areas that are not in the stencil. Since the orange shades in the sun are part of the stencil, you turned off the stencil momentarily to pick up that area of the picture.



- Click the Brush Selector with the left mouse button, move the large cross-hair over to the sun image (on the far right of the screen) and pick it up with the left mouse button. Move the brush over to the mountain range.
- Choose Stencil>On/Off from the Effect menu to turn the stencil on.

Did you see the sun move *behind* the mountains and then peek through? This is because every color — except the sky colors and the background — is locked, and so will not accommodate the sun brush. When you are satisfied with the placement of the sun, click the left mouse button to stamp an image of it there.

CUTTING SOME Z'S

In this exercise we will explore further aspects of DeluxePaint's powerful stencil editor. In particular, you'll see how to turn stencil colors on and off from any part of your picture, not just from the Make Stencil requester.

- Display the Make Stencil requester and click Clear to clear the stencil. Now move the cursor outside the requester and click the large Z shape with the left mouse button. Click Invert and then click Make to return to the painting screen.

Did you notice that when you clicked the Z the Make Stencil requester responded by locking that color? This means that you can lock and unlock colors directly from your image just by clicking them. Note that each click of the mouse toggles the locking function on and off, just as it does in the requester. And to make it easy to find the colors you want to lock or unlock, you can move the Make Stencil requester to any part of the screen just by moving the cursor to the top of the requester, pressing the left mouse button, and dragging it to a new position.

Now let's see what we can do with the stencil we just created:

- Press the ~ (tilde) key to turn off the stencil.

Pressing ~ is the same as choosing Stencil>On/Off from the Effects menu. This is a very important keyboard equivalent for working with stencils.

- Click the Brush Selector and pick up the textured area to the right of the Z.
- Press the ~ (tilde) key to turn on the stencil.
- Move the cursor over to the Z and watch what happens.

Did you see the textured brush appear behind the Z? Because all the colors except the Z are locked, it looks like you're viewing the textured brush through a Z-shaped window. Now, when you place the textured brush behind the Z and click the left mouse button, you will fill the Z with the textured pattern.

THE EYES HAVE IT

You may have trouble finding a practical application for this next exercise, but it's fun nonetheless.

- Display the Make Stencil requester, click Clear, and then click the following colors: 7, 8, 24, 28, 29, 30, and 31. Click Make to complete the transaction. Turn off the stencil. Pick up the two blue circles at the lower right and move them to the face. Turn on the stencil.

Because all the colors in the face are now locked, the two circles appear to move behind it. When the circles are directly behind the eyes, you can make the eyes appear to move around just by moving the cursor. You can set the eyes in any position you like just by clicking the left mouse button. If you don't like it, click Undo and try again.

FIXING THE BACKGROUND

By using a combination of stencils and fixing the background, you can define a stencil by area rather than color. This lets you confine a stencil to a particular area of the page, without forcing you to lock every instance of a particular color. Let's take a closer look:



- Pick up the small clump of pine trees from the right-hand side of the page (above the blue circles). From the Effect menu, choose Background>Fix.

You have just fixed the picture to the background (the "B" in the Menu Bar tells you so), which means you can always return to that picture by clicking CLR. Thus, you can stamp pine trees all over the landscape and then return to the original picture at any time. You can also fix the background successively, updating the picture from the previous "fix." As we saw earlier, you can use the "Again" key (a) to repeat the immediately preceding menu command.

- For the purpose of this exercise, go ahead and stamp a few clumps of pine trees in front of the closest mountain range. Now let's turn that collection of pine trees into a stencil:
- From the Stencil submenu, select Lock FG.

This last action turned the foreground (i.e., everything you added to the picture since fixing the background) into a stencil, but without affecting any other part of the picture that uses those same colors. Try it and see. Move your pine-tree brush over to the pine forest and you'll see that your brush goes behind the forest but in front of everything else. You can remove this stencil either by turning the stencil off (selecting On/Off from the Stencil submenu) or making a stencil by locking colors.

The color and area methods are mutually exclusive, so using one method automatically negates the other. And as is the case with regular stencils, clicking CLR does not clear the stenciled area — it is protected until you turn it off, just like the fixed background.

TUTORIAL FOUR: PUTTING THINGS IN PERSPECTIVE

Before you attempt to complete this tutorial, you should work through Chapter Five: Using Perspective. That chapter introduces you to the fundamentals of perspective in DeluxePaint III. In this tutorial, we'll create a perspective landscape and build a three dimensional arch as shown in Figure 6.7. In the process, you'll learn some of the tricks about using perspective that you can only understand when you see them in context.

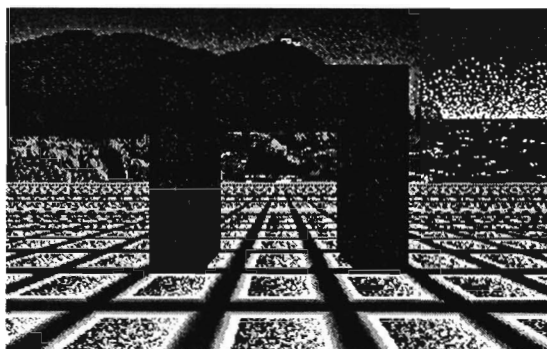


Figure 6.7 *Seascape with Arch*

CREATING THE PLANE

The first step of our tutorial is to create a perspective plane. You don't need to create a plane every time you use perspective. We're doing it here, so you can readily see the "depth" of your picture.

- Load the Block brush from the Art disk.

Notice that this brush is held by the lower right corner. If you expect to use a brush in Perspective, it is best to save the brush with the handle in the lower right corner for two reasons:

1. Rotations always occur around the handle, so holding the brush in the corner helps make the rotations consistent and useful.
 2. If you establish a Perspective grid, you can make all of your brushes conform to that grid if their handles are in the same corner.
- Choose Coords (short for Coordinates) from the Prefs menu.
 - Press the Enter key to enter Perspective mode.
 - Position the cursor at 196, 25 and press Shift-G, which turns on the grid and uses 196, 25 as one of the grid points.
 - ▲ **Tip** If you turn on Coordinates and take note of the cursor position before you rotate your brush, you'll be able to recreate the perspective plane exactly.



- Press Shift-Keypad 7 to rotate the brush -90° on X.

Notice that at this point you don't have angles in your Menu Bar. You can turn off Coordinates if you want to see the angles, but you don't need them for this exercise, since all of our movements are on 90° and based on sight, not numbers.

- Choose Perspective>FillScreen from the Effect menu.

BUILDING THE ARCH

- Load the RedBlock brush.

You are no longer in Perspective mode, but the Grid is still on.

- Press the Enter key to enter Perspective mode.

Your brush is automatically laid down on the perspective plane in the same orientation you left it in last (that is, rotated -90° on the X axis). This is an important point to remember, because it means that you can easily bring in new brushes at the right perspective simply by loading them with the perspective plane defined by the previous brush.

- ▲ *Tip* You'll notice that the grid as been adjusted to your new brush size. It is not necessarily true that your new brush will line up correctly with the grid point you used to define the plane (196, 25), because the brush handle is tied to the closest grid point when you enter perspective, and there is a three-in-four chance that it will be tied to one of the other corners. If you want the brush to line up with the grid point you specified when you created the grid, press Keypad 0 to reset the brush to 0, 0, 0 orientation, align the handle with the grid point, and rotate the brush again.

If you don't want your perspective grid automatically sized to new brushes, turn off the AutoGrid option in the Prefs menu.

- Press G to turn off the Grid so you can move the brush freely on the plane.
- Position the brush so that the Y axis of the brush is aligned with the Perspective Center and the bottom of the brush is aligned with the

edge of the second full row of tile on the floor. (The coordinates will show this point as 175, 46)

- Press Shift-G to turn on the grid and use your new handle position as one of the grid points.
- Press Shift-Keypad-8 to rotate the brush up on the X axis. Move the brush two grid points to the left and stamp it down. Paint the brush three times above the current brush position so you create the face of a column.
- Paint the brush four times to the right to form the top of the arch and the top of the right column. Then paint the brush three times down to form the right column.

At this point you have a two dimensional arch on a three dimensional plane. Our next task is to give the arch a third dimension.

- Move the brush so that it is directly on the bottom block of the left column of your arch. Press Shift-Keypad 4 to rotate the brush 90° on the y axis. Paint the brush where it is and twice above to form the left side of the column.
- Move the mouse a bit to the right to move the brush back along its x axis and paint another set of blocks so your column is one block wide at the face and two blocks deep as shown in Figure 6.7.
- Press Shift-Keypad 5 to rotate the brush back on its Y axis so that it is facing you head on. If the brush is not the same size as the facing blocks of your arch, hold down the Ctrl key and move the mouse forward or backward to bring it closer or move it back.

As we explained in Chapter Five: Using Perspective, the Ctrl key temporarily fixes the Y axis of your brush so that you can move it on it's Z axis. As you become adept at painting in Perspective, you'll find yourself using this key often.

- Position the brush to the left of the bottom block of the right column. Press Alt-x to change the brush handle to the other side of the brush.

Your brush jumps so that it is over the bottom block of the right column, but the brush is now held by the lower left corner. Remember that Alt-x, Alt-y, and Alt-s reposition your brush handle. These keyboard equivalents are especially useful while working in Perspective, since



you usually don't want to move your mouse to choose from a menu.

- Press Shift-Keypad 5 to rotate the brush 90° on the Y axis. Paint the brush where it is and twice above to form the left side of the column. Paint another column just behind this first one so your column is one block wide at the face and two blocks deep.
- Press Shift-Keypad 4 to rotate the brush back on the Y axis. If the brush is not the same size as the facing blocks of your arch, hold down the Ctrl key and move the mouse forward or backward to bring it closer or move it back.
- Move the brush up so that it is over the block in the upper left corner of the arch. Press Shift-Keypad 7 to rotate the brush -90° on the X axis. Move the brush to the right and stamp it once below each of the three blocks that form the top of the arch. Paint another row just behind this first row so the top of your arch is one block high and two blocks deep.

Your arch is complete and should look just like the arch in Figure 6.7.

INSERTING THE SEASCAPE PICTURE

To give your perspective painting a bit more color, and a landscape for the background, we'll load the Seascape picture and add it behind the arch.

- Choose Spare>Swap from the Picture menu to display the spare page.
- Load the Seascape picture from the Tutorial drawer on your Art disk. Choose Change Color>Default Palette from the Picture menu.
- Jump back to your main page (press J or choose Spare>Swap from the Picture menu).
- Choose Spare>Merge in Back from the Picture menu.

In a flash, your arch has a nice seascape backdrop.

This exercise gave you a quick example of perspective, but you can do a lot more. For an excellent example of perspective at work, load the picture Hall of Stars from the Tutorial drawer on your Art disk.



NOTES



This chapter introduces you to DeluxePaint III's animation features. It begins by explaining the basic model for animation and then covers each of the different ways to create animations in DeluxePaint III. We recommend that you work through this chapter in one sitting. It will take you approximately 45 minutes to complete.

BEFORE YOU BEGIN

Do the following before you start into the examples:

- Boot DeluxePaint as you normally would.
- When the Choose Screen Format requester appears, click OK to use the default settings (Lo Res 320x200 and 32 colors).

In a moment the DeluxePaint screen appears, and you're ready to begin.

THE BASIC MODEL

The basic idea behind animation in DeluxePaint is that instead of having a single page to paint on, you have multiple pages that you can paint on and flip through. By creating images that differ slightly from page to page and then playing them back in rapid succession, you can create the illusion of motion.

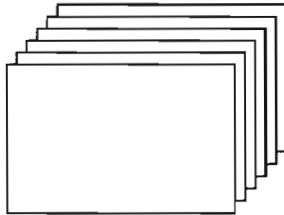


Figure 7.1 *The basic model*



This section shows you how to:

- ☐ create frames for your animation
- ☐ paint on individual frames in the animation
- ☐ paint while the frames are flipping—this is called animpainting.

CREATING FRAMES

The first step in building an animation is to create the frames to paint on.

- Choose Frames>Set # from the Anim menu. The Set Frame Count requester appears.

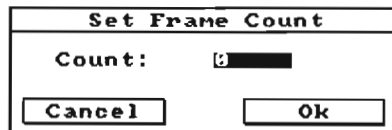


Figure 7.2 *The Set Frame Count requester*

- Click in the Count edit field, change the frame count to 10 and click OK.

You now have 10 frames to paint on. Notice the numbers 1/10 at the left side of the menu bar. This means you are positioned on the first frame of a 10 frame animation.

PAINTING ONE FRAME AT A TIME

- Select the largest round built-in brush and paint a dot in the upper left area of your screen.

The dot you just placed is on frame 1. The trick of animation in DeluxePaint is to paint a slightly different picture on successive frames. So you need to move to the next frame.

- Choose Control>Next from the Anim menu to move to frame 2. (Notice the menu bar shows 2/10.) Click another dot to the right of where your first dot was.

Now you have a dot on frame 1 and a dot on frame 2. To create a series of dots that move across the screen, you just continue the last step. Of course, choosing from the menu to change frames is a little cumbersome, and it forces you to move the mouse when you want to change frames. It's more efficient to move through the animation frames by using the keyboard equivalents. (You'll see them listed in the menu beside the options.) We'll use one to complete our little animation:

- Position your brush just to the right of the dot you painted. Press the 2 key at the top of the keyboard once, then click the mouse to paint a new dot. Repeat this step until your first dot appears again in the left side of the screen. (The menu bar will show 1/10 as your frame position.)

You've just created a brief animation. Now let's play it.

- Choose Control>Play from the Anim menu (or press 4 at the top of the keyboard). You should see your dot moving from left to right across the screen.
- To stop the animation, press the **Space bar**.

So, one way to create an animation in DeluxePaint is to paint on a series of frames individually.

PAINTING WITH ANIMATION

For animations that involve simple movement of an object, DeluxePaint provides a much easier method called animpainting. Essentially, the frames flip automatically while you paint.

- Click CLR. The Options requester appears.



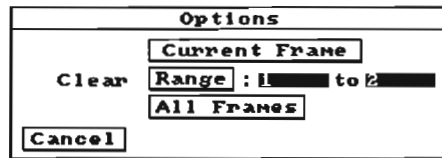


Figure 7.3 *Options requester*

When you click CLR with multiple frames, DeluxePaint gives you the option of clearing only the current frame, a range of frames in your animation, or all frames

- Click All Frames in the requester.

Instantly all of your frames are cleared and you are automatically set back at frame 1. Now let's do some animpainting.

- Select the large round brush. Click the Dotted Freehand tool. Hold down the Left Amiga key (the Commodore key on the Amiga 500) and paint by holding down the left mouse button and dragging across the screen from left to right.

As you paint, the frames flip, so you place only one dot on each frame of your animation. Notice that the frame counter in the menu bar changes to show you the frame you are on. When you reach the last frame, you loop back to frame 1, where you'll see your first dot again.

- After you have painted for a few seconds, stop and choose Control>Play from the Anim menu (or press 4 at the top of the keyboard).
- Press the **Space bar** (or click the mouse button) to stop the animation.

Now you know how to create frames, how to move through the frames one by one and paint, and how to animpaint. Animpainting is especially powerful if you have an animated brush to paint with; we'll show you how animated brushes work later in this chapter. Right now we want to show you more ways to move things on the screen.

AUTOMATIC ANIMATION USING THE MOVE REQUESTER

The Move requester lets you move and rotate a brush over a number of animation frames. More importantly, you can move and rotate the brush in all three dimensions. In essence, you are painting using Perspective, but DeluxePaint makes all of the calculations for the individual frames. This section will take you through a detailed explanation of each feature of the Move requester and give examples for most of the features.

- To begin, click CLR and All Frames to clear the previous animation sequence.
- Choose Frames>Set # from the Anim menu. In the requester, change the count to 20 and click OK. Press Shift-1 to move to frame 1 of your animation.
- Choose Load from the Brush menu, and load the brush DPaintTitle from the Art disk. Choose Change Color>Use Brush Palette from the Picture menu.
- ❖ *Note* These instructions assume that your memory method (Method in the Anim menu) is set to Compressed — the default setting. Amigas with one megabyte of RAM can create only 9 to 10 frames using the Expanded method. You'll find a brief description of the two memory methods in the Reference section of this manual.

SIMPLE MOVES IN THREE DIMENSIONS

The Move requester does exactly what its name implies—it moves your brush on the screen. There are many impressive animations you can create with only the Move requester and a brush like our DPaint III brush, but to create those impressive animations, you need to know how each feature of the move requester works. This brief section explains the most basic Moves.

- Stamp your brush in the center of the screen.
- Choose Move from the Anim menu. The Move requester appears.



Move				
	X	Y	Z	
Dist:	0	0	0	BRUSH
Angle:	0	0	0	BRUSH
Clear		Go Back		
Ease-Out:	0	Direction:		
Ease-In:	0	Move Record		
Count:	10	← → ↶ ↷		
Preview		Trails	Fill	Draw
Cancel		Exit		

Figure 7.4 The Move requester

The first row in the Move requester lists the three axes in the three dimensional space of your screen. If you are familiar with Perspective you know that these axes run up and down, left and right, and out and in from the screen respectively. Figure 7.5 shows the orientation of the three axes to the screen.

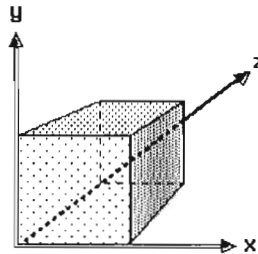


Figure 7.5 The three axes

Directly below the X, Y, Z letters there are edit fields for entering Distance (Dist:) numbers. You enter numbers here to tell DeluxePaint how far to move your brush in any direction or combination of directions. (If your brush is moving only on the X and Y axes, the numbers are equal to pixels, but once you move along the Z axis, the units are either smaller or larger than pixels.) Let's look at a simple example:

- Click in the Dist edit field below X and enter 200.
- Check that the edit field beside Count (near the middle of the requester) shows 20 as the current setting. If the number is not 20, click in the edit field and change the number.

- Click Preview to see a preview of the movement of your brush.

You will see your brush enclosed in a wire frame move to the right across the screen. If you want your brush to move to the left, you enter a negative number for the X Distance.

- In the Move requester, set the X Dist edit field to -200. Click Preview.

This time your brush moves to the left across the screen. A similar rule applies to the other two axes: Y Distance moves your brush upward if the number is positive and downward if the number is negative. Z Distance moves your brush out to the distance if the number is positive or inward to the screen if the number is negative.

You can use any combination of the three Dist edit fields to move your brush anywhere in three dimensional space. Try it if you like. Set a number for each of the three fields and click Preview to see where the brush would move.

SIMPLE ROTATION

In addition to moving the brush along an axis or several axes in combination, the Move requester lets you rotate the brush around one or more axes.

- In the Move requester, click Clear to clear all of the Distance and Angle edit fields.
- Click in the Z Angle edit field and enter 360 as the angle of rotation. (This tells DeluxePaint that you want to rotate the brush 360° on the Z axis.) Click Preview.

You'll see a wire frame representation of your brush rotate clockwise on the screen. Just as you entered negative numbers to change the direction of movement when using Distance moves, you enter negative numbers to change the direction of rotation when you use Angle moves.

- Change the Z Angle setting to -360° and click Preview.

Now you'll see the wire frame rotate counter-clockwise.



MOVEMENT ALONG THE BRUSH'S AXES

In our examples, we've been moving the brush along the screen axes. You might have noticed that there are buttons labeled Brush to the right of the Distance and Angle edit fields. These buttons let you set whether you want to move and rotate on the screen axes or the brush axes.

When your brush is in a standard orientation (0, 0, 0), movement on the brush axes is the same as movement on the screen axes. If you rotate your brush using Perspective, the brush axes may no longer correspond to the screen axes, and movement on the brush axes will be different. Here's an example.

- Click Exit to close the Move requester
- Click CLR and click All Frames in the requester to clear all frames.
- Choose Perspective>Do from the Effect menu to enter Perspective mode.
- Move the brush down near the bottom of the screen and press Shift-Keypad 7 to flop the brush over on its back. Click the left mouse button to paint down the brush.

To flop the brush over on its back, you rotated it 90° on the X axis (see the Menu Bar) and shifted the brush axes so that they no longer correspond to the screen axes. Figure 7.6 illustrates the change in the brush axes.

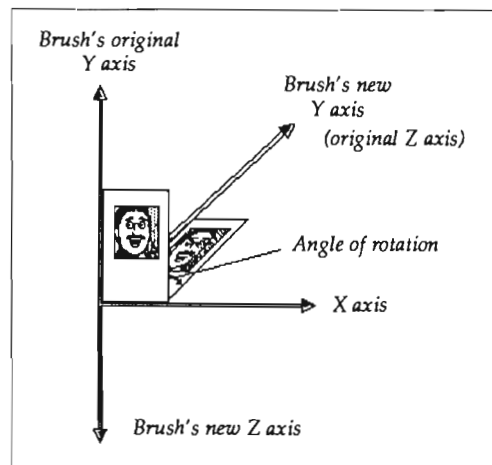


Figure 7.6
The change in a brush's
axes upon rotation

Now if you use the Move requester to move the brush along the Y axis, you will get different results depending on whether or not you have selected the Brush button.

- Choose Move from the Anim menu. In the Move requester, click Clear, set the Y Distance to 200, and click Preview.

You see a wire frame of your brush move upwards on the screen, just as you would expect when moving along the screen axis.

- Click the Brush button beside the Distance edit fields. (The button becomes highlighted.) Now click Preview and watch the direction the brush moves.

This time the brush moved into the distance along the Y axis of the brush. As Figure 7.6 above shows, the brush's Y axis is the same as the screen's Z axis when you rotate backwards 90° on X as we did.

ROTATION ON THE BRUSH'S AXES

You may have already guessed what will happen when we rotate the brush on it's own axes rather than on the screen axes, but this is sometimes difficult to visualize, so we'll give an example.

- Click Cancel to close the Move requester
- Click CLR and click All Frames in the requester to clear all frames.
- Choose Perspective>Reset from the Effect menu to reset all of the Perspective settings.

At this point you once again have your brush in the original orientation and are in Perspective mode. Now we'll rotate the brush on the Z axis, so that the X and Y axes of the brush no longer match the X and Y axes of the screen.

- Hold down the 2 key on the keypad until the brush has rotated 45° on the Z axis. (You'll see the degrees of rotation in the right side of the menu bar.)
- Paint down the brush in the middle of the screen.



- Display the Move requester. (Are you getting tired of choosing Move from the Anim menu? Then try the keyboard equivalent, Shift-M.)
- In the Move requester: click Clear; set the X Angle to 360; click the Brush button to the right of the Angle edit fields; click Preview.

With the settings above, you'll see the brush tumble toward the screen on the X axis. Remember that the brush is rotating on the *screen's* X axis. Now let's look at a rotation on the brush's X axis.

- In the Move requester: click the Brush button to the right of the Angle edit fields; click Preview.

This time the brush spins around its own X axis instead of tumbling toward the screen. The idea is the same for all rotations, though it isn't always easy to predict what a complex set of rotations will look like. You'll probably find that most of your moves can be accomplished with rotation around only one axis at a time. And once you get use to rotations on the brush axes, we think you'll use these most often, so brush rotations are the default setting.

- ❖ **Note** If you found this last example to be confusing, you should probably review the chapter on Perspective. There you will find more information on the difference between screen and brush angles. The examples might help you understand how the Move requester uses them.

THE GO BACK COMMAND

The Go Back button has a similar function to the Clear button, only it affects the location of the brush rather than the settings in the Move requester. When you use the Move requester to move your brush in three dimensional space, DeluxePaint remembers the *ending* position of the brush when the move is complete. If you want to do a second move from the original brush position, you click Go Back to reset the brush location.

We'll show you the results of two different move paths, one without using Go Back and one using Go Back. In this example you'll also actually draw and play the animation instead of simply previewing it.

SUCCESSIVE MOVES WITHOUT GO BACK

- Click Cancel in the Move requester. Click CLR and clear all frames.
- Choose Perspective>Reset from the Effect menu (or press Shift-Keypad-0) to reset your brush to the original orientation.
- Position the brush at the bottom of the screen, and paint it down.
- Display the Move requester. Click Clear to clear the edit fields and then set the Y Distance to 200 and the Z Distance to 400. Click Draw.

You just created the first part of the brush's movement, now we'll create the second part to continue from where the brush ended.

- Display the Move requester. Set the X Distance to 800, leave the Y distance at 200, and set the Z distance to 0. Click Draw.
- Choose Control>Play from the Anim menu and watch your animation. Press **Spacebar** when you've seen it enough.

In the animation you created, your brush moves into the distance and upward and then shoots off the screen diagonally to the right. Because you didn't use the Go Back button, the second part of the brush's movement follows directly from the end of the first part.

SUCCESSIVE MOVES WITH GO BACK

In the next set of steps, you'll use the same settings as the first example, but you'll also click the Go Back button before drawing the second part of the brush movement.

- Click CLR and clear all frames. Choose Perspective>Reset from the Effect menu (or press Shift-Keypad-0) to reset your brush to the original orientation. Position the brush at the bottom of the screen, and paint it down.
- Display the Move requester. Set the X Distance to 0, the Y Distance to 200, and the Z Distance to 400. Click Draw.
- Display the Move requester. Set the X Distance to 800, leave the Y distance at 200, and set the Z distance to 0. Click the Go Back button. Click Draw.
- When DeluxePaint is finished drawing the animation, choose Control>Play from the Anim menu and watch your animation.



This time you see your animation shows a title splitting into two, with one title moving into the distance and upward and the other moving diagonally off the screen to the right.

CYCLIC AND NON-CYCLIC MOVES

You use the Cyclic button to tell DeluxePaint which of two kinds of animation you want:

- ☐ an animation that will loop back on itself (cycle) or chain from the current move to another move of a similar type; or
- ☐ an animation that is linear and will end at the last frame you requested with the Move requester.

DeluxePaint draws your move differently depending on whether or not the Cyclic button is selected. In this section we'll give you a very quick example of the difference between the two moves.

- Load any brush that contains features to help you tell whether or not the brush has been rotated. (The DPaintTitle brush will do very well.)
- Click CLR and clear all frames. Choose Perspective>Reset from the Effect menu (or press Shift-Keypad-0) to reset your brush to the original orientation. Stamp the brush in the upper half of the screen.
- Display the Move requester. Click Clear in the requester. Set the Z Angle to 360. Make sure the Cyclic button is selected. Click Draw.

When DeluxePaint is finished drawing your animation, notice that you are on frame 1 of your animation. DeluxePaint moved you to the frame past the ending frame of your Count.

- Press Shift-2 to go to the last frame of the animation. (The Menu Bar will show 20/20 on the left side.)

Notice that on the last frame of your animation, the brush is not rotated 360°, even though you asked for a 360 rotation in the Move requester. This is because you had the Cyclic option selected to tell DeluxePaint that you were creating a "cyclical" animation (one that starts and ends at the same point). With this animation, you can play continuously without a seam.

- Press the 4 key at the top of the keyboard and watch the animation for a moment. Press Space bar to stop the animation.

If DeluxePaint had painted the brush fully rotated on the last frame, you would have the same image on frames 1 and 20, and the animation would hiccup when you played it continuously. Let's draw the same thing with Cyclic turned off to see how that works.

- Press Shift-1 to move to frame 1 of your animation. Paint your brush in the lower half of the screen. Display the Move requester. Click Cyclic to turn it off (remove the highlight) and click Draw.

Even as the new move is being drawn you will probably notice that the new rotation is in larger steps than the first one. When the draw is complete, you will be left at frame 20, where you can see that the new move completed the 360° rotation on frame 20. (Remember that the Cyclic move left you on frame 1.)

- Press the 4 key at the top of the keyboard and watch the animation. Press Space bar to stop the animation.

You should be able to see that the rotation at the top of the screen is smooth, but the rotation at the bottom of the screen hiccups noticeably.

You might ask yourself at this point why anyone would want Cyclic turned off. The answer is simple: you might want to rotate exactly 90° by a particular frame or you might want to move an object from point A to exactly point B. Generally, if you are creating an animation sequence that runs for less than the full number of frames you have allocated for your animation, you don't want Cyclic turned on. For a clear example of why you would want Cyclic turned off, follow the next set of steps.

- Clear all frames of your animation. Press Shift-2 to move to the last frame.
- Select the Unfilled Circle tool and the single-pixel brush and draw a small circle on the right side of the screen.
- Choose Coordinates from the Prefs menu to turn on Coordinates.
- Select the Dotted Freehand tool and the largest round built-in brush. Position the brush in the middle of your unfilled circle and note



what the Coordinates show as the location of the brush. Move the brush 200 pixels to the left, press 2 to move to frame 1 and stamp down your brush.

- ▲ **Tip** When you need to move your brush in a straight line horizontally or vertically as you did in the step above, hold down the Shift key. This constrains your cursor to horizontal or vertical movement, depending on which direction you move in first.
- Display the Move requester, click Clear, set the X Distance to 200, make sure Cyclic is selected, and click Draw.

When DeluxePaint finishes drawing the animation, notice that you are left on frame 1. Now look at the last frame (press Shift-2). You'll see that even though the distance from where you stamped your brush to the center of the circle was exactly 200 pixels and the move you requested was 200, the dot did not reach the center of the circle. If you want to move your brush to a specific location by your ending frame, you don't want Cyclic on. Figure 7.7 shows the results of the steps above with Cyclic selected and not selected.

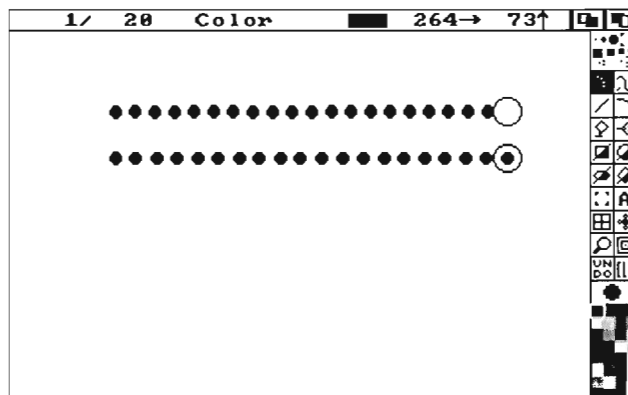


Figure 7.7 Example of linear move with and without Cyclic selected

Although you can't see it, DeluxePaint has positioned the brush in the center of the circle on frame 1. If you want to prove this. Go to frame 20, display the Move requester, click Clear, change the Count to 1 and click Draw.

When you complete a move with Cyclic selected, DeluxePaint automatically advances you to the frame beyond the end of your Count and the brush position DeluxePaint remembers is the position you specified in the Move requester.

SMOOTH MOVES WITH EASE

The Ease Out and Ease In edit fields let you specify a number of frames over which you want the brush to accelerate or decelerate in your animation. The primary advantage of these features is that you can make the brush movement smooth at the beginning and ending points. Also, some effects require a gradual acceleration and deceleration to be realistic. For example, a bouncing ball should accelerate on the way down. The bouncing ball is a good example of how this feature works, so let's try it. In the process we'll also use the Come To option .

- Clear all of your frames. Draw a filled circle about the size of a nickle and pick it up as a brush.
- Move to frame 20 and stamp the brush down near the bottom of the screen.
- Display the Move requester; click Clear; enter -170 for your Y Distance move. Change the Ease Out edit field to 10. Select the Come To option . Make sure the Count is set to 20. Click Draw.
- When DeluxePaint has finished drawing your animation, choose Control>Ping Pong from the Anim menu to play the animation forward and backward. What you should see is a bouncing ball.

Let's take a moment to review what you just did. When you entered -170 for your Y move, you told DeluxePaint that you wanted the brush to move downward 170 pixels. When you entered 10 in the Ease Out edit field, you told DeluxePaint that the brush should gradually increase its speed over the first 10 frames and then move at the same speed for the last ten. Finally, by clicking the Come To option , you told DeluxePaint that the brush movement should end in the position and on the frame where you clicked.

The Come To option is especially useful when it is easier to stamp the brush at the end of a move than to stamp it at the beginning. This was



exactly the case with our bouncing ball example. We can more easily stamp the brush where we want the ball to bounce than we can stamp above and enter numbers that will move the ball to the proper end point.

WHAT'S LEFT

What remains in the Move requester is fairly straightforward. For now, we'll summarize what each of the buttons does. You'll find examples of the features in the following chapter and additional explanations in the Reference.

DIRECTION

The Direction options control the direction of the move and the direction of the recording.

 The Go From button is the default setting for movement. With this option selected, the settings in the Move requester are used to paint motion away from the point where you stamped your brush. For example, an X Distance of 200 moves to the right *from* where you stamped your brush.

 With the Come To option selected, the settings in the Move requester are used to paint motion toward the point where you stamped your brush. For example, an X Distance of 200 moves to the right *to* where you stamped your brush. This option is most useful when it's easier to specify the position where you want the move to end than it is to specify the beginning. Remember that you want to stamp the brush on the *last* frame you want to draw.

Record    The Record options let you specify the direction in which DeluxePaint paints the frames of your move.

-  Forward is the default and paints the frames by flipping forward.
-  In Place causes DeluxePaint to paint all of the move on the current frame.
-  Backward paints the frames by flipping backward — this option is useful with Trails.

Trails and Fill are best explained by vivid example, you'll find two examples of each in the next chapter.

ANIMATED BRUSHES

So far we've shown you how to create an animation by painting on a series of frames. DeluxePaint also lets you select an area of animation as a brush and paint with it. The result is that the brush changes while you paint, and, depending on whether or not the frame changes, you create either animation or interesting effects.

In A Guided Tour, we showed you how to load and use one of the anim-brushes included on your Animation disk. In this section, we'll show you how to create a simple animbrush and paint with it.

CREATING A SMALL ANIMATION

To begin, let's create a simple animation that we can easily pick up as a brush.

- Choose Change Color>Default Palette from the Picture menu.
- Clear all of your animation frames. Paint a circle about the size of a quarter and filled with a gradient. Pick your circle up as a brush.
- Paint your brush down and use the move requester to rotate it 360° over twenty frames (display the Move requester; set all of the options to their defaults; set the Z Angle to 360; select Brush angles; make sure the Count is 20 and that Cyclic is selected).

Your brush will rotate in place to create an animation that looks a little like a spinning planet.

PICKING UP AN ANIMBRUSH

- When DeluxePaint is finished painting the animation, step to frame 1 and choose Anim Brush>Pick Up from the Anim menu.



This last step gave you a large cross-hair like the one you use to pick up standard brushes, but it is special in that it picks up from all of your frames.

- Pick up the circle animation as a brush as you normally would using the left mouse button.

When you release the mouse button, you will see each of the frames flip as the area is picked up. When it's done, you have your animbrush. Another way to pick up an animbrush is to select the Brush Selector and hold down the Left Amiga key (Commodore key on Amiga 500's) as you pick up an area of your animation.

USING THE ANIMBRUSH

- To prove that you have an animated brush, paint with it a little.

You'll see that the brush spins as you paint. This is one way to use an animated brush. But better yet, try animpainting:

- Click CLR and clear all frames. Hold down the Left Amiga key (Commodore key on Amiga 500's). Position the brush in the lower left corner of the screen and paint from left to right across the screen.

The frames flip as you paint, so you only place one cel of the animbrush on each frame of your animation. When you play the animation back, you'll see a ball roll from left to right across the screen.

ANIMBRUSH SETTINGS

When you begin to combine animbrushes into large animations, you'll find that occasionally you want to change the rate at which an animbrush transforms. You might even want to change the direction in which an animbrush plays. For example, you might want the gradient ball you created above to turn in the opposite direction. You can do this with the AnimBrush Settings requester.

- Choose AnimBrush>Settings from the Anim menu.

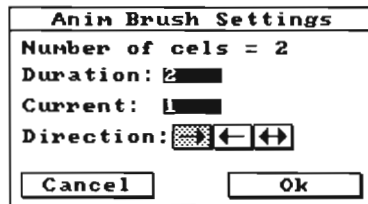


Figure 7.8 *AnimBrush Settings*

- Click the (backward) direction button and click OK.

Now your gradient circle will rotate in the opposite direction when you paint with it.

The Duration field in the AnimBrush Settings requester let's you specify how many stamps of the brush the animbrush uses to complete its cycle. If the Duration number is larger than the number of cels, the brush seems to move more slowly. If the Duration number is smaller than the number of cels, the brush seems to move more quickly. Let's try painting normally with a brush and then paint with the Duration set higher.

- Choose AnimBrush>Load from the Anim menu. Load the file named Bird from the Animbrush folder of your Animation disk.
- Display the AnimBrush Settings requester and set the Direction to play forward, . Click Ok.
- Select light blue as your background color and clear all frames.
- Stamp the brush in the middle of the screen Display the Move requester. Click Clear. Set the X Distance to -100 and the Z Distance to -100. Click Draw.

Your bird is painted flying outward from the center of the screen toward the left edge. Play the animation to see what it looks like. Now let's paint another bird that flaps its wings more slowly.

- Choose AnimBrush>Settings from the Anim menu. Set the Duration field to 24. Set the Current field to 1 to put the brush at its first cel. Click Ok.
- Go to frame 1. Display the Move requester. Click Go Back. Change the X distance to +100 and leave everything else the same. Click Draw.



This time your bird flies out to the right. Play the animation and compare the flapping of the birds wings. If you step through the frames of your animation one at a time, you'll see that the bird on the right takes two frames before changing the wing position, while the bird on the left moves its wings on every frame.

Now that you've seen some of DeluxePaint's animation features, you might like to play around a little. Load the animations on your Animation disk and play them. There are several animbrushes on the disk that you can combine with the Mermaid animation. When you feel you're ready to see some more of Deluxe Paints animation features, move on to the next chapter. It shows you how to create some interesting animation effects by combining different features of the program..





NOTES



This chapter introduces several interesting animation effects and a host of animation tips. We strongly recommend that you work through this chapter and complete the Amazing Bouncing Ball section, which serves as a good test of your knowledge of DeluxePaint.

EFFECTS

In the following sections you'll create some interesting animation effects. Many of these effects are not obvious, so it is worth your time to follow closely and work along.

As you begin each section that uses the Move requester, you should have the Move requester set to its default settings. Our instructions will tell you only which settings you need to change out of the defaults when you first open the requester. Figure 8.1 shows the Move requester in its default settings; use this as a guide if you need to check your own settings.

Move				
	X	Y	Z	
Dist:	0	0	0	BRUSH
Angle:	0	0	0	
Clear		Go Back		
Ease-Out:	0	Direction:		
Ease-In:	0	Move Record		
Count:	10	☐ → ☐ <<		
Preview		Trails Fill Draw		
Cancel		Exit		

Figure 8.1 Move Requester showing default settings

BEFORE YOU BEGIN

- Make sure you are in Lo-Res mode with 32 colors. Set your number of frames to 40. Make sure you are using the Compressed memory model.



QUICK EFFECTS

These two effects are good examples of how multiple features of DeluxePaint combine to make simple animation easy to create.

RECEDING OR APPROACHING SHAPES

This technique creates the effect of a shape moving off into the distance. Notice that this involves using a keyboard command while you paint with the mouse button down.

- Click the largest round brush with the right mouse button and stretch the brush to be about the size of a nickle.
- Select the Dotted Freehand tool.
- Position the brush near the upper left corner of the screen. Hold down the Left Amiga key (Commodore key on Amiga 500s) and begin animpainting in a curve downward toward the lower right area of the screen. As you paint, press the - (minus) key repeatedly to shrink the brush as it moves.

When you play back the animation, the gradual shrinking of the brush makes it look as though it is receding into the distance. Play the animation backwards, or create a new one using the + (plus) key, and the brush will appear to approach from the distance. This example used a built-in brush, but you can do the same thing with a custom brush.

DISSOLVE

The Trim command in the Brush menu makes it easy to have an object dissolve into nothing. You stamp the brush, trim some away, step to the next frame, and stamp again. The real trick is to use the keyboard to do all of your frame changes, trimming, and brush stamps.

- Select black as your background color and clear all of your frames. Load the DPaintTitle brush from your Art disk and stamp it in the middle of frame 1.
- Display the Move requester. Click Clear to set all of the Distance and Angle edit fields to 0. Set the Count to 1. Make sure that all of the other options are set to their defaults. Click Draw.

- Press **Shift-O** to trim the brush. Press **Shift-M** to display the Move requester and click Draw. Repeat this step until the brush has completely disappeared. (It will take about 9 frames.)

Using the Move requester to stamp your brush saves you from having to carefully position the brush on each frame. You can also accomplish this by positioning the brush once and then using the keyboard equivalent (Left Alt-Right Amiga) to click the left mouse button. (We recommend the right Amiga key, because the left Amiga key turns on anim-painting.)

Since you didn't use all 40 of your frames, we'll use the Control>Set Range option in the Anim menu to play just the frames you painted.

- Choose Control>Set Range from the Anim Menu. In the Set Play Range requester, set the From field to 1 and the To field to 10. Click the Range button. Click Ok.
- Now press 4 to play your animation and you'll see your brush dissolve repeatedly until you press Spacebar or the mouse button to stop the animation.
- Before you leave this example, choose Control>Set Range again and set the range to All Frames.

EXPANDING CIRCLES

This example shows you how to create the effect of a circle expanding outward like a "sonar blip." You use two DeluxePaint features to help you align the circles and make them grow uniformly: Grid and the 2 key (the Next Frame keyboard equivalent).

- Clear all frames of your animation and go to frame 1. Turn on the Grid with X and Y spacing of 8.
- Select the second-largest round built-in brush and paint a dot in the center of the screen.
- Choose the Unfilled Circle tool. Start from the dot in the center of the screen and drag out a circle that is just one grid point wider than the dot, but don't release the mouse button. Press the 2 key to move to the next frame. Now release the mouse button.

At this point you have a dot on frame 1 and a small circle on frame 2.



- Continue to follow the last step above to paint larger and larger circles on successive frames until your circle reaches the sides of the screen.

When you play your animation, you'll see one circle expanding outward. If you're adventurous, try picking up your entire animation as an animbrush and animpainting it onto your existing animation by starting it on frame 5. This will give you an animation of two circles expanding outward.

TRAILS

This example demonstrates the use of Trails. You'll find this option in the Move requester makes it easy to create impressive title effects.

- Clear all frames.
- Load the brush DPaintTitle from the Art disk. Choose Change Color>Use Brush Palette from the Picture menu.
- Now go to the LAST frame by pressing Shift-2. You should be on frame 40. Stamp the brush at the bottom of the screen. Display the Move requester. Click Clear. Set the Z Distance to -1500. Select the Come To option  for your Move Direction.

The Come To option tells DeluxePaint that the position of the brush is where you want the animation to end—you want the animation to "come to" the brush position and frame.

- Now click Preview. (There is a slight delay, and then the preview plays, starting at the distant position [Z=1500] and coming closer.) Instead of clicking Draw, click Trails, and let it record.

By clicking Trails, you tell DeluxePaint to carry the cumulative effect of each frame forward as it draws. The result is that the brush leaves a trail as it moves through three-dimensional space in your animation.

- Press 5 on the main keyboard for a single play of the animation.

THE SLINKY

The Slinky is a modified version of the standard Trails title. You've probably seen this effect on many television sports shows. A special feature of this effect is that it uses the Stencil in combination with the Move requester. This combination can be very powerful when used properly. When a stencil is used with the Move requester, DeluxePaint remakes the stencil for each frame as it renders the move.

- Load the DPaintTitle brush if you don't already have it. Clear all frames.
- Step to the middle frame of your total. For example, if you have 40 frames as we suggested, move to frame 20 by choosing Control>Go to from the Animate menu. Stamp the brush down near the bottom of the screen.
- Display the Move requester. Click Clear. Make sure that both Brush buttons are unselected (not highlighted). Set the Z Distance to -1000. Set the Count to 20. Select the Come To option . Click Trails.

As in the Trails effect above, DeluxePaint paints your title with the cumulative image carried forward to each successive frame.

- Step to frame 40.

Now you need to create a stencil so you can "paint behind."

- Choose Stencil>Make from the Effect menu. In the Make stencil requester, click the background color (black), click Invert, and click Make to lock all colors but the background.
- Display the Move requester. Leave all of the other settings the same, but select the backwards Record Direction . Click Trails.

Because you reversed the Record direction, DeluxePaint begins this move by painting on frame 40. It then steps one frame backwards and paints the cumulative effect of frame 40 and the new brush position on frame 39. This is where the Stencil comes into play. Because the colors in the title are stenciled, the second brush stamp appears to be painted "behind" the single image that was stamped on frame 40 though, in fact, it was painted over the single image.



The resulting animation should have your brush moving from the distance, leaving Trails, until it gets to the nearest position, at which point the Trails start erasing from the back forward.

- Before you move on to the next effect, choose Stencil>Free from the Effect menu.

CURVING TITLES

This example shows you how to create the effect of a title moving across the screen on a curved path using the curve tool instead of the Move requester.

- Clear all frames.
- Load the DPaintTitle brush from your Art disk.
- Go to the last frame (frame 40) and stamp the brush near the bottom of the screen. Click Undo.
- ▲ **Tip** Clicking Undo immediately after stamping the brush helps ensure that your results are what you expect. This is particularly important if you are using a Brush Mode in your move, because DeluxePaint paints on the screen you stamped on when it paints the move, and stamping twice on the same screen will give a different result from a single stamp.
- Display the Move requester. Click Clear in the requester. Set the Z distance to -1200. Select the Come To option . Click Draw.

DeluxePaint paints the brush moving toward the screen from the distance.

- Pick up the animated title as an animbrush. (Be sure you are on frame 1 when you pick up the brush.) Press Alt-x to place the brush handle in the lower right corner of the brush so you will be able to click it off-screen.
- Clear all frames. Click the Curve tool with the right button to display the Spacing requester. Click the N Total button and set the total to 40. Click OK.

The Spacing requester lets you tell DeluxePaint exactly how many brush stamps you want to use to paint your curves, lines, and unfilled shapes. By setting the Spacing to N Total of 40, you'll get 40 stamps of the brush. Since you have 40 frames, when you use the brush to animpaint, you'll get one stamp of the brush on each frame. Click on N Total.

- Press **Shift-7** to go to the first cel of the animbrush. Position the brush at the left side of the screen and midway between the top and bottom. Hold down the **Left Amiga** key (Commodore key on Amiga 500s) and the left mouse button and drag down to the lower right corner of the screen. (You'll see your title drawn along the path of your curve.) Release the mouse button and define the shape of the curve while still holding down the **Left Amiga** key. When the curve is a shape you like, click the mouse button to begin animpainting.

When DeluxePaint is finished painting your curve, press the 5 key to play the animation once. You'll see the brush move into view and curve it's way down to the lower right corner of the screen.

TUMBLING 3D OBJECTS

Like the Curving Title effect above, this effect also uses the curve tool to move an animbrush along a curved path. However, in this effect, you use an object that looks three-dimensional, and you tumble it at the same time you move it toward the screen.

- Clear all frames.
- Load the brush named GradientCube from the Brush drawer on your Art disk. Go to the last animation frame (frame 40). Stamp the brush in the center of the screen. Click Undo.
- Display the Move requester. Set the Z Distance to -1200 and the Z Angle to 720. Select the Come To option . Click Draw.

DeluxePaint paints your cube rotating 720° and moving toward you from the distance. Now you need to pick up this tumbling object as a brush. You must pick up the entire animated area, beginning at frame 1 where you see only a tiny object. Here's how:



- Click the Brush Selector. Go to frame 40, where the object is largest. Hold down the Left Amiga key and enclose the object with your cross-hair, but don't release the mouse button. (You can release the Left Amiga key.) Press 2 to step forward to frame 1. Release the mouse button.

Now you have your animbrush of the object tumbling and moving toward you. In the next step, you use the curve tool and Spacing to give it a trajectory across the screen.

- Clear all frames. Set the Spacing requester to N Total 40. Place the brush handle in the lower right corner of the brush so you will be able to click it off-screen.
- Press Shift-7 to go to the first cel of the animbrush. Position the brush at the left side of the screen and mid way between the top and bottom. Hold down the **Left Amiga key** and the left mouse button and drag down to the lower right corner of the screen. Release the mouse button and define the third point of the curve while still holding down the **Left Amiga key**. When the curve is a shape you like, click the mouse button to begin animpainting.

Notice that even though the cube has only two true dimensions, the combination of the three-sided view and the tumble make it appear as though the brush is three-dimensional.

PLANETARY ORBITS — BRUSH HANDLES

This example shows you how to create an animation that simulates the orbit of a planet. This demonstrates the importance of brush handles—when you rotate a brush, the rotation always takes place around the brush handle.

- Paint a circle about the size of a quarter and filled with a gradient. Pick the circle up as a brush.
- Clear all frames.
- Stamp a copy of the brush in the middle of the screen.
- Click Draw to draw 40 frames of your brush.
- Choose Brush Handle>Place from the Brush menu.

Your brush now has a cross-hair running through the center of it.

- Position the brush about an inch and a half above the circle you painted in the middle of the screen. Hold down the left mouse button, drag straight down to the center of the ball you painted, and release the mouse button.

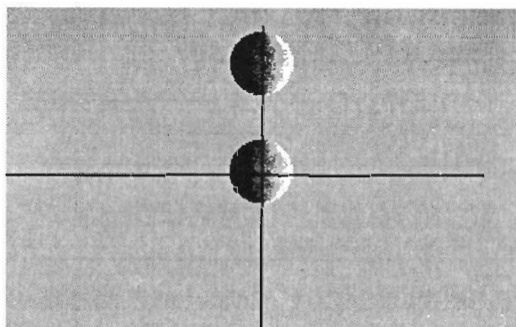


Figure 8.2 *Placing the brush handle*

Now your brush is offset from the cursor by about two inches. We'll use this brush to create an orbiting planet.

- Point at the center of the stamped circle with the cursor and click. (This stamps your circle brush above the circle in the middle of the screen.)
- Display the Move requester. Set the Z Angle to 360. Click Draw.
- Play the animation back and you'll see that your planet orbits around the central circle!

Using the brush handle effectively becomes a little more complicated when you rotate over more than one axis, but you might want to spend a little time trying different settings to see the effects you can create.

SCROLLING BACKGROUND

This section shows you how to create a scrolling background from a single picture. All you need to create this effect is a picture with left and right edges that meet to form a seamless image.



- Clear all frames.
- Load the picture named Backdrop from the Dinos drawer (in the Lo-Res drawer) on your Art Disk.

In the next step, you remove the gradient from the ground in the picture to reduce the amount of memory required for the animation. Since you are working in the Compressed memory model, each pixel of your animation that changes from one frame to the next uses memory. By removing the gradient, you reduce the number of pixels that change, and thus the amount of memory required. Still, this scrolling background will use a lot of memory. If you are using a 1 megabyte system, you will probably not be able to add any additional animation to the background.

- Change your background color to the primary orange color of the ground in your picture. Click the Brush Selector tool and pick up the ground using the right mouse button. This will remove the gradient and leave the primary orange color behind.
- Click the Brush Selector again and pick up the entire picture as a brush. Click CLR and clear all frames to the orange background.
- Stamp the picture back down as it was before. Display the Move requester. Set the X Distance to -320. Click Draw.
- When DeluxePaint is finished drawing your move, press Alt-x once to hold your brush by the lower left corner. Position the cursor in the very bottom right corner of the screen. (This aligns the left edge of your brush with the right edge of your picture on frame 1.) Stamp the brush in place. Display the Move requester and click Draw.

DeluxePaint paints a second version of the Backdrop picture to complete the 40 frame scrolling background. Play your scrolling background to see how it looks.

This example showed you how to create a scrolling background that moves left to right, but you can create one that moves in any direction by following the same basic steps. You can also use a picture that is larger than an animation frame to create your scrolling background. To do this, you create a large Scratch page and load or paint your large picture. Then you pick up the pieces of the picture in frame-size chunks and put them together just as we did above, except that after you put together two

pieces, you go to the Scratch page for the next chunk of picture and position at the first *blank* frame (in our case the first blank frame would be frame 41 if we had additional frames) and do the same move as before.

FILLED PLANE EFFECTS

The following effects use the Fill option in the Move requester to create filled planes that move. In the first example, the plane moves toward you so that it seems as though you are traveling, in the second example, the filled plane rolls as though you are doing a roll in an airplane.

- Set the number of frames to 20.
- Create a simple filled circle brush to use for your filled planes. (If you are on a 1 megabyte Amiga, don't add any gradient or other detail, because these filled plane moves require a lot of memory even with a simple brush.)
- ▲ **Tip** For the Moving Ground example, it helps if your brush height is a multiple of the number of frames you have. This will produce smoother results.

MOVING GROUND

- Enter Perspective. Position the brush near the bottom right corner of the screen and press Shift-7 to rotate the brush -90°. Stamp down the brush. Click Undo.
- Click the Grid tool with the right mouse button and note the number listed for the Y Grid value in the Perspective requester. Click OK.
- Display the Move requester. Set the Y Distance to the same number as the Y Grid value only make the number negative. Turn on the Brush button beside the Distance fields so that you move along the brush's coordinates. Make sure the Count is set to 20. Click Fill.

DeluxePaint will take a while to paint your 20 frames. When it is finished, the animation will show a plane of circles moving toward you.

ROLLING HORIZON

- Clear all frames to black. Choose Perspective>Reset from the Effect menu.



- Press Enter twice (this takes you out and then back into Perspective). Position your brush near the bottom of the screen. Rotate the brush to -90° on the X-axis. Stamp down the brush. Click Undo.
- Display the Move requester. Click Clear. Set the X Distance to -640 and the Y Angle to 360. Make sure both Brush buttons are selected. Click Fill.

Again, DeluxePaint takes a while to paint your 20 frames. When it is finished, the animation will show the filled plane of circles rotating 360° around the perspective center.

AMAZING BOUNCING BALL

Creating this effect is admittedly somewhat involved. In the process, you will use a wide range of features in DeluxePaint. At this point we assume you are familiar with all of the features, and our instructions are, at times, general. We hope this doesn't deter you from trying this amazing effect. It is, in fact, a great way to test your knowledge of the program; if you get stuck, you should look up how to perform the task we describe. Now, without further ado, the amazing bouncing ball.

- Set your number of frames to 10 and clear all frames.

First you need to create a range of colors to cycle. These will ultimately produce a spinning effect.

- Display the Color Palette requester and create a spread of eight identical reds and eight identical whites. Define these colors as a range and set the cycle speed to the maximum. Make sure these colors are not in any other ranges.

Now you create a checkerboard pattern and wrap the pattern onto a circle to make it appear spherical.

- Display the Fill Type requester. Select the Horizontal gradient fill. Turn Dither off.
- Select one of the reds in your range of reds and white. Select the Filled Rectangle tool. Turn on Coordinates. Paint a rectangle that is 45 pixels wide and 22 pixels high.

- Pick up your rectangle as a brush and create a red and white checkerboard pattern. Then pick up exactly a 5 square by 5 square section of the checkerboard as a brush.
- Clear all frames. Display the Fill Type requester. Select Wrap fill. Paint a filled Circle that is approximately 3 inches across.

As a finishing touch to your basic ball, you rotate it slightly so that, when you eventually spin it, it spins on an angle.

- Use the right mouse button to pick up the circle as a brush. (Be sure to pick up the smallest area possible.) Choose Rotate>Any Angle from the Brush menu and rotate the brush about 20°.

Now you give the ball some bounce.

- Go to the Frame 1. Stamp down the rotated brush so the bottom edge is near the bottom of the screen. Display the Move requester. Click Clear. Set the Y distance to about 75. Set Ease In to 10. Set the Count to 10. Select Go From. (Click Preview. The brush should move upward until it almost reaches the top of the screen. If it goes too far or not far enough, adjust the Y Distance setting and try Preview again.) Click Draw.

Finally, you send the ball bouncing off into the distance by using the Move requester.

- Pick up the animated ball as an animbrush. Then choose Anim-Brush>Settings from the Anim menu. Click the Ping Pong icon. Click OK.
- Clear all frames. Set the number of frames to 40 and Go to Frame 1 of the animation.
- Move the brush handle to the lower right corner of the brush. Go to cel 7 of the animbrush. Place the cursor in the lower left corner of frame 1 (so the brush is off the screen) and stamp down the brush.
- Display the Move requester. Click Clear. Set the X Distance to 850 and the Z Distance to 500. Set the Count to 40. Set Ease In to 0. Click Draw.
- Turn on Color Cycling and play the animation.



You'll see a remarkably realistic animation of a spinning, bouncing ball. If you are adventurous, try creating a plane for the ball to bounce on. You'll need to adjust the plane's position to match the bottom of the ball where it bounces. Then you create the plane on the Scratch page and merge it behind the animation. When you choose the Spare>Merge in Back option, DeluxePaint asks if you want to merge behind all of your frames. This feature makes it easy to build up animations from several elements.

TIPS

This brief section lists some tips for using DeluxePaint's animation features. This is not a complete list of tips, so be sure you at least scan the rest of the manual if you are not inclined to read everything.

- ▲ You can use Fixed Background to see the current frame as you modify it for the next frame. This is very useful for freehand animations. Here's how it works:

Create some animation frames and draw a figure on frame 1. Choose Background>Fix from the Effect menu. Choose a different color to paint a modified version of the first figure. Press 2 to step to frame 2. Choose Background Free to stamp the modified figure on frame 2. You can repeat this process to paint the next modification, and so on.

- ▲ If you want your brush to grow (move toward the screen) in your animation, but you need to stamp it in the small size for proper positioning, you will get nicer results if you paint the brush large and then use the ' or Ctrl key in Perspective to shrink it before you paint it down for the move. This way the brush moves toward its original large size as it is drawn by the Move requester and the large size will not suffer from "jaggies."
- ▲ Ease Out and Ease In in the Move requester always affect both the Distance and Angle motions. So a falling, tumbling object won't look right — the tumble accelerates along with the fall. Here's a work around: Use Move to make a tumbling object without Ease Out or Ease In. Pick the object up as an animbrush. Now use Move to make this animbrush fall with Ease-Out for acceleration. The tumble stays at a constant rate, but the fall accelerates!

Similarly, Move can't Ease-Out one Distance parameter and not the other. That means it can't make a cannonball fly at a constant X speed but a decelerating Y speed (to form a parabola). You can overcome this by creating the animation in steps as in the Amazing Bouncing Ball effect: Use Move to paint a ball falling with Ease In. Pick up the falling ball as an animbrush. Use Move (or the Straight Line tool with N Total spacing) to paint the falling ball moving across the screen at a constant rate.

- ▲ If you want an object to completely disappear when it flies off to infinity, here's a trick: Set the X rotation to 90° so that the brush turns "edge on" as it approaches infinity. This way no more than a single pixel line will remain of your brush.
- ▲ When you paint your brush down to begin a move, Undo immediately after you stamp the brush. This guarantees that the brush appears correctly on the current frame when the move is painted. Painting down your brush before a move is how you tell DeluxePaint where to start the move from. You don't need to leave the paint in place, since DeluxePaint paints that frame again as the first frame of the move.
- ▲ You can't stamp the brush behind you, but you can Move it there. If you want an object to start from behind the viewer and drop into the screen with a perfect, unbroken motion, do this: Start from the center position and use the Move requester set to a Count of 1 to move the brush out to the position you want (for example, -1000 from the front of the screen). Now clear the screen or reload the background for the animation. Use the Move requester to move the brush forward enough Z distance to go from behind you past the center position and off into the distance.
- ▲ If you have a series of pictures that use the same screen format and palette, you can use DeluxePaint III to give a slide show. Just load each picture into a frame (see Load in the Picture menu for loading multiple pictures) and set a slow frame rate or flip the frames manually with the 2 and 1 keys.
- ▲ You can calculate the Distance numbers for the Move requester by positioning the brush at each end of the move in Perspective and subtracting the beginning position coordinates from the ending position coordinates.



SPACING TIPS

- ▲ When you animpaint with the shape tools, use the Spacing requester to control the number of brush stamps used to draw the shape. In effect, this setting determines how many frames you will paint over.
- ▲ *Instant Marquees* Set the Spacing requester to N Total and the number of frames you have, and animpaint unfilled shapes using a built-in brush. Using the Spacing set to N Total for animpainting is especially good with the Circle tool, which otherwise paints a non-cyclical pattern. Also try setting Spacing to Every Nth Dot, especially with the unfilled Polygon tool.



NOTES



This reference is organized in three major parts:

- The Toolbox
- The Menus
- User Feedback

Some entries in this reference make cross-references to other sections of the manual or other sections of the reference. If you see a cross-reference, we recommend that you look at that section referred to for more information.

I TOOLBOX

The toolbox is located on the right side of the screen. It contains built-in brushes, tools, the Color Indicator, and the Palette. You can hide the toolbox to work on more of your painting at one time by pressing the F10 key at the top of the keyboard (this hides the toolbox and the menu bar) and then pressing F9 to display the Menu Bar without the toolbox.

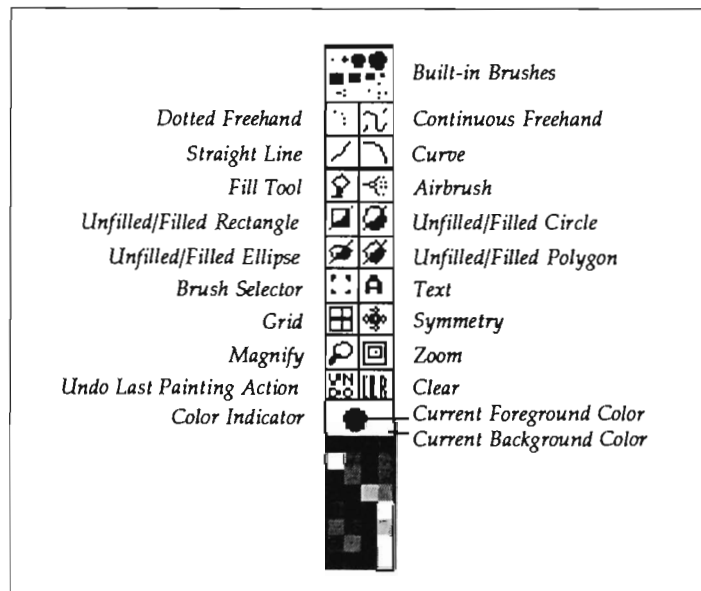


Figure 9.1 The Toolbox



In the following descriptions of the tools, you'll find information about all of the different mouse button and keyboard combinations that are designed to work with each tool. Where appropriate, the descriptions of the tools also include the keyboard equivalents. And to help you learn these, we have suggested a mnemonic for each one. You'll find these especially useful if you want to hide the Toolbox as explained above.



BUILT-IN BRUSHES

There are ten built-in brushes at the top of the Toolbox. To select a built-in brush, click on it with the left mouse button.

Clicking a brush with the right button invokes the size option; when you move the brush to the screen, your cursor will have the word **SIZE** hanging from it. To increase or decrease the size of the brush, hold down either mouse button and move the mouse.

You can press the **plus** key on the keyboard to increase the size of your brush, or press the **minus** key to decrease the size of the brush.



DOTTED FREEHAND TOOL (Keyboard Equivalent: **s**; Mnemonic: sketch)

Use this tool to paint freehand in a series of "splats" of the current brush shape. To paint:

- Move the brush to the page, hold down the mouse button and move the mouse.

The spacing between splats is a function of the speed at which you move the mouse. If you move the mouse slowly, there is no space between splats. As you increase the speed at which you move the mouse, the spacing between splats increases.



Holding down the **Shift** key while painting with the Dotted Freehand tool constrains the tool to move either horizontally or vertically, depending on the direction you move the cursor immediately after pressing Shift.



CONTINUOUS FREEHAND/FILLED FREEHAND SHAPE TOOL (Keyboard Equivalent: d; Mnemonic: draw)

Use the Freehand tool to draw freehand in a continuous spread of paint. This tool works the same as the Dotted Freehand tool, except that it never "dots."

Holding down the **Shift** key while painting with the Continuous Freehand tool, constrains the tool to move either horizontally or vertically, depending on the direction you move the cursor immediately after pressing Shift.

Use the Filled Freehand Shape tool to draw filled freehand shapes. When you release the mouse button, your shape is filled using the current setting of the Fill Type requester. (If you release the mouse button before you reach the starting point for your filled shape, the shape is completed with a straight line from the current mouse position to the starting point of the shape.)

Holding down the **Alt** key as you click on the Filled Freehand Shape tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. If you use a custom brush as your current brush, it is possible to paint shapes that are filled with one color and outlined with another. The outline is painted by tracing the shape with the current brush. Note that the shape is traced by the brush handle; if the handle is offset from the brush, the outline will be offset from your filled shape.

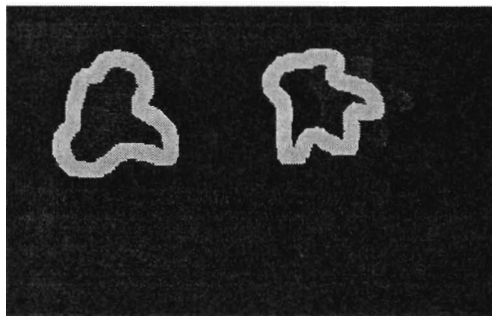


Figure 9.2 *Two outlined shapes using a custom brush—one with the handle centered and one with the handle offset from the brush*



Clicking on the Filled Freehand Shape tool with the right mouse button displays the Fill Type requester. You use the Fill Type requester to set the fill type for all filled shapes. See Fill Tool for an explanation of the options in this requester.



STRAIGHT LINE TOOL (Keyboard Equivalent: `v`; Mnemonic: `vector`)

Use this tool to paint a straight line . To paint a line:

- Click the Straight Line tool with the left mouse button; then position the cursor at the beginning of the line, hold down the appropriate mouse button, drag the mouse to the end of the line, and release the mouse button.

Holding down the **Shift** key while painting a straight line constrains the line to be either horizontal or vertical, depending on the direction you move the cursor immediately after pressing **Shift**.

Holding down the **Ctrl** key as you paint a straight line, causes the line to leave “traces” as you paint.

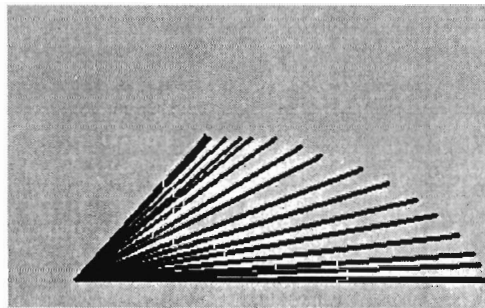


Figure 9.3 *Traces drawn with Straight Line tool*

Clicking the Straight Line tool with the right button displays the Spacing requester. The Spacing requester lets you specify the space between the paint “splats” deposited by the brush.

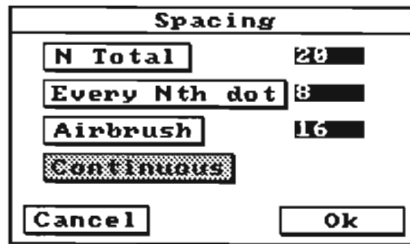


Figure 9.4 *The Spacing requester*

N Total defines the total number of “splats” that will occur along the line. You can define the number of “splats” by clicking the Number gadget, backspacing or deleting over the existing value and typing in the new value.

Every Nth dot spacing sets the number of pixels between each “splat” of the brush.

Airbrush paints using the airbrush tool along the path defined by any tool affected by the Spacing requester. The number to the right of the button sets the number of airbrush sprays to be applied at each pixel along the path. This creates a fuzzy line or shape. You can use this feature with the painting modes from the Modes menu to create interesting effects. For example, using Smooth with a circle and the Airbrush spacing can create interesting textured effects.

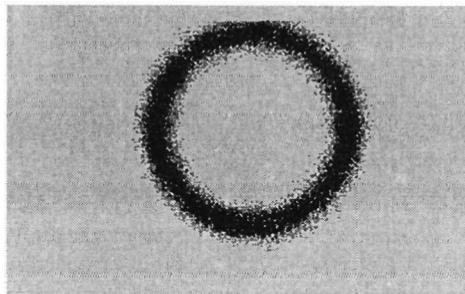


Figure 9.5 *Circle painted using Airbrush spacing and the Smooth painting mode*



Continuous spacing paints an unbroken path with no space between pixels. Continuous is the default setting for the Spacing requester.



CURVE TOOL (Keyboard Equivalent: q; Mnemonic: curve)

Use the Curve tool to draw arcs between two points. You use this tool much like the Straight Line tool, except that the line remains attached to your cursor, so you can specify the third point in the arc.

- Click the Curve tool with the left mouse button to select it. Then, position the cursor where you want the curve to begin, hold down the mouse button, move the cursor to where you want the curve to end, and release the mouse button. Move the mouse to drag the line to the arc shape you want, and click the mouse button.

Holding down the **Shift** key while painting with the Curve tool constrains the tool to move either horizontally or vertically as you paint the initial line, depending on the direction you move the cursor immediately after pressing **Shift**. This is useful if you want the ends of your curve to line up horizontally or vertically.

Holding down the **Ctrl** key as you paint a curve, causes the curve to leave "traces" as you paint.

Clicking the Curve tool with the right button displays the Spacing requester (see Straight Line tool, above, for an explanation of the options in this requester).



FILL TOOL (Keyboard Equivalent: f; Shift F: Fill requester; Mnemonic: fill)

Use the Fill tool to fill an enclosed area using the current settings in the Fill Type requester.

- Click the Fill tool with the left mouse button to select it. Move the paint can cursor over the enclosed area you want to fill so that the tip of the spout is within the area, then click the mouse button to fill. (The spout of the Fill tool is the one pixel opening at the bottom of the "splash.")

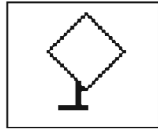


Figure 9.6 The “spout” of the fill cursor

Holding down the **Alt** key when you click with the Fill cursor, fills outward to the background color. In other words, the fill spreads outward until it reaches areas of the current background color. This works well in combination with the Tint fill setting to change the color of a gradient.

Clicking the Fill tool with the right button displays the Fill Type requester. The options in the requester are explained in the following paragraphs. When you return to the painting screen after choosing a fill type, the current gradient (or pattern, if Pattern or perspective is selected) and its orientation are shown in the Color Fill box in the menu bar (see User Feedback in Menu Bar, later in this chapter).

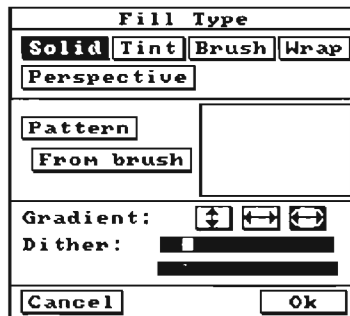


Figure 9.7 The Fill Type requester

Solid fills with the current color. If you paint or fill your shape using the left button, the shape is filled with the foreground color. If you paint or fill your shape using the right mouse button, it is filled with the background color.



Tint tints the area with the current fill color by replacing the Hue and Saturation levels of the screen pixels with those of the current fill color. Tint does not change the Value of the pixels. (See Tutorial One in Chapter Six: Painting Tutorials for a discussion of Hue, Saturation, and Value.) When DeluxePaint performs a Tint operation, it calculates the RGB values for the new color and then looks in your palette for the closest matching color. As a result, the effect created by a Tint is dependant on the colors available in the current palette.

Brush fills with one image of the current custom brush and sizes it to fit the filled area. See Figure 9.8.

Wrap fills with one image of the current custom brush and adjusts it to the horizontal and vertical shape of the filled area. This gives the illusion of wrapping the brush around a 3D solid. The effect is most pronounced if you use it to fill a shape that is very different from the shape of the custom brush. See Figure 9.8.

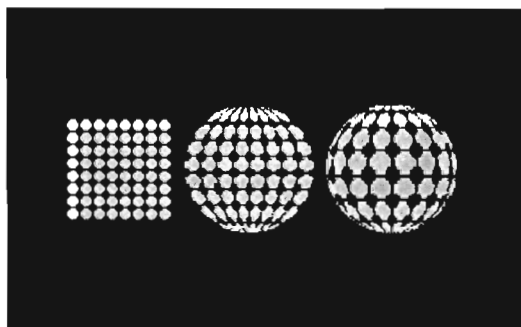


Figure 9.8 *Brush and Wrap fills*

Perspective fills with a pattern of the current brush in the current perspective setting (see Perspective under the Effects menu later in this chapter).

HBrite fills using the HBrite painting mode. In effect, this is a special form of tinting that only works if you are working in Extra Halfbrite mode. When you are not in Extra Halfbrite mode, this option does not appear in the requester.

Pattern fills with a pattern made from a brush. To use this option, you must first click **From Brush** to create a pattern of the current brush. This pattern remains the current fill pattern until you click **From Brush** again to create a new pattern.

Gradient fills with a spread of colors from the cycle range of the current foreground color. Select one of the three options by clicking it with the left mouse button:

-  **Vertical** fill paints the gradient vertically from left to right with an even distribution.
-  **Horizontal** fill paints the gradient horizontally from top to bottom.
-  **Horizontal Line** fill paints the gradient left to right one line at a time and adjusts the gradient on each line so that it follows the contours of the shape being filled.

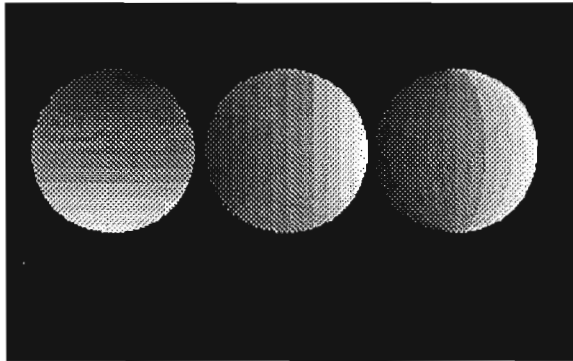


Figure 9.9 *Vertical, Horizontal, and Horizontal Line gradient fills*

You can specify the direction of the gradient fill (that is, which colors in the cycle range it begins filling with) by clicking the **Cycle Direction Arrow** in the **Color Palette** requester. (See **Color Palette** requester later in this chapter.)

Dither controls the degree of mixing of colors in the gradient fill. Drag the **Dither** slider left or right with the left mouse button to decrease or increase the amount of dither. Setting **Dither** all the way to the left gives



you no mixing between shades. Moving the Dither slider to the right increases the amount of mixing at the color boundaries.

H-B The H-B option lets you choose whether you want the Extra Halfbrite colors used in your gradient. This option does not appear in the requester if you are not in Extra Halfbrite mode.



AIRBRUSH TOOL

Simulates the action of an airbrush by spraying with the current brush.

- Click the Airbrush tool with the left mouse button to select it. Position the cross-hair on the page and press either mouse button.

Holding down the **Shift** key while painting with the Airbrush tool, constrains the tool to move either horizontally or vertically, depending on the direction you move the cursor immediately after pressing Shift.

Clicking on the Airbrush tool with the right mouse button lets you size its nozzle. After clicking the tool with the right mouse button, move the cursor onto the page and hold down the left mouse button. Now drag the mouse until the nozzle is the size you want, then release the mouse button.



UNFILLED/FILLED RECTANGLE TOOL (Keyboard Equivalent: **r** — Un-filled; **R** — Filled; Mnemonic: rectangle)

Use the Rectangle tool to paint a rectangle shape using any brush. The upper left half of the tool paints a rectangle outline using the current settings of the Spacing requester. The lower right half of the tool paints a filled rectangle using the current settings of the Fill Type requester.

- Click the Rectangle tool with the left mouse button to select it. Position the cursor on the page where you want the rectangle to begin; then hold down the mouse button and move the cursor diagonally in any direction to form a rectangle. When the rectangle is the size you want, release the mouse button.

Holding down the **Shift** key while painting with the Rectangle tool, constrains the rectangle to be the same number of pixels wide and high.

You will notice that holding down **Shift** does not produce a square. This is because the pixels in the Amiga display are not square. To paint a square, turn on the Be Square option in the Prefs menu. When Be Square is on, DeluxePaint III adjusts the height and width of your square so that it appears square rather than being square in terms of pixel count.

Holding down the **Ctrl** key as you paint a rectangle, causes the rectangle to leave "traces" as you paint.

Holding down the **Alt** key as you click on the Filled Rectangle tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See Freehand Shape tool for more information.)

Clicking on the Unfilled Rectangle tool with the right mouse button displays the Spacing requester. Use this requester to set the spacing between "splats" in the sides of your rectangle. (See Straight Line tool, above.)

Clicking on the Filled Rectangle tool with the right mouse button displays the Fill Type requester. Use this requester to set the type of fill you want in your rectangle. See Fill Tool for an explanation of the options in this requester.



UNFILLED/FILLED CIRCLE TOOL (Keyboard Equivalent: **c** — Unfilled; **C** — Filled; Mnemonic: circle)

Use the Circle Tool to paint circles using any brush. The upper left half of the tool paints a circle outline using the current settings of the Spacing requester. The lower right half of the tool paints a filled circle using the current settings of the Fill Type Requester.

- Click the Circle tool with the left mouse button to select it. Position the cursor on the page where you want the center of the circle; then hold down the mouse button and move the cursor in any direction to form the circle. When the circle is the size you want, release the mouse button.

The circles that DeluxePaint III paints may not appear perfectly circular. Circles are painted to be the same number of pixels high as they are wide. The circles do not appear perfectly circular because the pixels of the



Amiga display are not square. If you want your circles to appear circular, turn on the Be Square option in the Prefs menu. When Be Square is on, DeluxePaint III adjusts the height and width of your circle so that it appears circular rather than being circular in terms of pixel count.

Holding down the **Ctrl** key as you paint a circle, causes the circle to leave "traces" as you paint.

Holding down the **Alt** key as you click on the Filled Circle tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See Freehand Shape tool for more information.)

Clicking on the Unfilled Circle tool with the right mouse button displays the Spacing requester. Use this requester to set the spacing between "splats" in the sides of your circle. (See Straight Line tool, above.)

Clicking on the Filled Circle tool with the right mouse button displays the Fill Type requester. Use this requester to set the type of fill you want in your circle. See Fill Tool for an explanation of the options in this requester.



UNFILLED/FILLED ELLIPSE TOOL (Keyboard Equivalent: **e**—Unfilled; **E**—Filled; Mnemonic: ellipse)

Use the Ellipse tool to paint an ellipse shape using any brush. The upper left half of the tool paints an ellipse outline using the current settings of the Spacing requester. The lower right half of the tool paints a filled ellipse using the current setting of the Fill Type requester.

- Click the Ellipse tool with the left mouse button to select it. Position the cursor on the page where you want the center of the ellipse and click the mouse button; move the cursor in any direction to form the ellipse shape you want; then hold down the left mouse button and move the mouse in a circular motion to rotate the ellipse to the orientation you want. When the ellipse is positioned the way you want, release the mouse button.

Holding down the **Ctrl** key as you paint an ellipse, causes the ellipse to leave "traces" as you paint.

Holding down the **Alt** key as you click on the Filled Ellipse tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See Freehand Shape tool for more information.)

Clicking on the Unfilled Ellipse tool with the right mouse button displays the Spacing requester. Use this requester to set the spacing between “splats” in the sides of your ellipse. (See Straight Line tool, above.)

Clicking on the Filled Ellipse tool with the right mouse button displays the Fill Type requester. Use this requester to set the type of fill you want in your ellipse. See Fill Tool for an explanation of the options in this requester.



UNFILLED/FILLED POLYGON TOOL

Use the Polygon tool to paint a polygon shape using any brush. The upper left half of the tool paints a polygon outline using the current settings of the Spacing requester. The lower right half of the tool paints a filled polygon using the current settings of the Fill Type requester.

- Click the Polygon tool with the left mouse button to select it. Position the cursor on the page where you want one of the corners of the polygon. Click the mouse button, then move the mouse in any direction to pull out a side of the polygon. Click to tack down each corner of the polygon. Clicking on the Polygon’s point of origin completes it.

(You can complete a polygon without having to search for the point of origin by pressing the **Spacebar**. This automatically completes the polygon by connecting your last corner with the origin. However, if you’re using the Unfilled Polygon tool, pressing the Spacebar will not complete the polygon. You’ll need to connect the last corner with the point of origin yourself).

Holding down the **Ctrl** key as you paint a polygon, causes the polygon sides to leave “traces” as you paint.

Holding down the **Alt** key as you click on the Filled Polygon tool causes the tool to paint shapes that are filled and then outlined with the current brush using the settings of the Spacing requester. (See Freehand Shape tool for more information.)



Clicking on the Unfilled Polygon tool with the right mouse button displays the Spacing requester. Use this requester to set the spacing between “splats” in the sides of your polygon. (See Straight Line tool, above.)

Clicking on the Filled Polygon tool with the right mouse button displays the Fill Type requester. Use this requester to set the type of fill you want in your polygon. See Fill Tool for an explanation of the options in this requester.



BRUSH SELECTOR (Keyboard Equivalent: b for new brush, B for previous brush; Mnemonic: brush)

Use the Brush Selector to create a custom brush from any image on the page, or to recall your most recent custom brush.

To select a rectangular brush area:

- Click on the Brush Selector with the left mouse button to select it. Move the cursor to the page, where it becomes a large cross-hair. Hold down the mouse button and drag diagonally to enclose the area you want to use as a brush. Release the mouse button to select it.

To select a polygonal brush area:

- Click on the Brush Selector *twice* with the left mouse button to select it. (The second click changes the Brush Selector icon to look like the Polygon tool.) You can now surround the area you want to pick up as a brush as though you were drawing with the Polygon tool. As with the Polygon tool, pressing the Spacebar completes the brush selection automatically.

Using the left mouse button to pick up a brush simply copies the selected area as a brush. Using the right button to select the brush cuts the selected area from the page to make the brush, and replaces the area with the current background color.

When you pick up a brush, any colors that match the current background color are transparent. If you have AutoTransp turned on in the Prefs menu, an additional rule is applied. In this case, if all corners of the brush are of the same color, that color becomes transparent, regardless

of whether it is the background color. (See AutoTransp in the Prefs menu later in this chapter.)

You can recall your most recent custom brush or animbrush by clicking the Brush Selector with the right button or pressing Shift-B. This toggles between the two brushes with each click.

Holding down the **Shift** key while selecting a brush with the rectangular Brush Selector will constrain the brush to be a square. This means that it will be the same number of pixels high as it is wide. Because the pixels of the Amiga display are not square, your brush may not appear square. If you want the brush to appear square, turn on the Be Square option in the Prefs menu before you select the brush.



TEXT (Keyboard Equivalent: t; Mnemonic: text)

Use the Text tool to type text onto your picture.

- Click the Text tool with the left mouse button to select it. Move the cursor to the page and click to place the text cursor. Type on the keyboard to enter text in the current foreground color. Use the Backspace key to erase text, and use Return to begin a new line. To exit text mode, press ESC or click a painting tool.

The text will automatically wrap around the right edge of the page and restart below the original cursor position. If your page size is larger than the screen, the page scrolls as you type off the edge of the screen. Note that you cannot backspace over typed characters if the screen scrolls.

Clicking the Text Tool with the right button displays the Choose Font requester. Use this requester to choose fonts, sizes, and styles for your text.



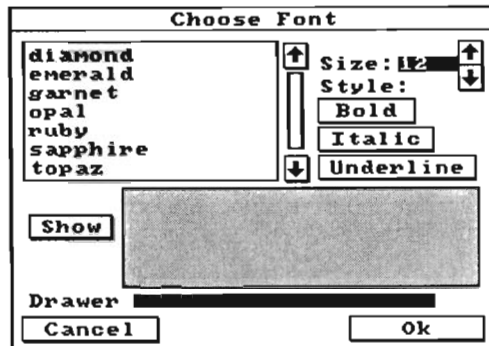


Figure 9.10 *The Choose Font requester*

The following options are available in the Choose Font requester:

The scrolling font list on the left displays the set of fonts that are available in the current font directory. To choose a font, click on its name in the scrolling list. By default this directory is specified as SYS:fonts. By clicking in the **Drawer** parameter and typing a new disk directory path name and hitting Return, you can specify a new disk drawer for fonts. This makes it much easier to access fonts from directories other than SYS:fonts. For example, to use the fonts on the Art disk, you would type art:fonts in the Drawer edit field and press Return. See the section titled Text in Chapter Four: The Elements.

You choose the size of the font by clicking on the up and down arrows next to the size parameter. The scrolling list of sizes is restricted to the currently available sizes for the font that you have chosen.

You choose the style of the font by clicking on the Bold, Italic, and Underline buttons below the Size parameter. You can use these styles in any combination. Clicking the buttons a second time turns the options off.

Clicking on the Show button loads the currently selected font from disk and displays a sample of the current font in the show window.



GRID (Keyboard Equivalents: **g** — grid on/off; **Shift-G** — grid on and uses brush handle location as a grid point; Mnemonic: **grid**)

The Grid constrains the action of the painting tools. If you use **Shift-G** to turn the grid on while using a brush, the grid will use the current brush handle position as one of its points.

The tools affected by the grid are:

- Dotted Freehand
- Straight Line
- Rectangle
- Circle
- Ellipse
- Brush Selector
- Text

Clicking the Grid icon with the right button displays the Gridding requester. Use the Gridding requester to adjust the x and y spacing of the grid.

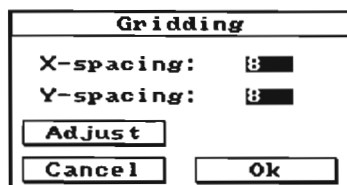


Figure 9.11 *The Gridding requester*

You can specify the grid values in pixels by deleting or backspacing over the existing values and typing in the new ones. Alternatively, you can click the **Adjust** box, which lets you visually place and adjust the grid. Position the grid and drag with either button to adjust the size.

Clicking the Grid tool with the right mouse button while you are in Perspective mode displays the Perspective Settings requesters. See Perspective Settings in the Effect menu for information about this requester.





SYMMETRY (Keyboard Equivalent: /)

The Symmetry tool helps you paint symmetrical patterns around a central point or based on a tiling scheme. Symmetry works with all tools except Text and Brush Selector.

Clicking the Symmetry tool with the right mouse button displays the Symmetry requester. You use this requester to choose between the two symmetry modes (Point and Tile) and to set parameters for each of the modes.

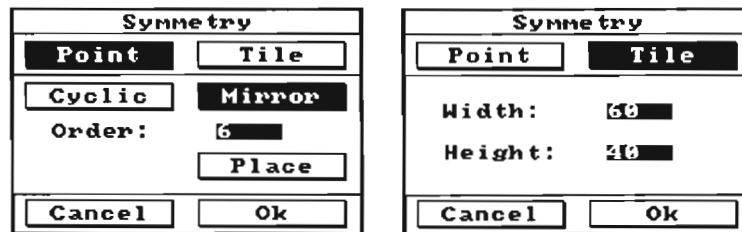


Figure 9.12 *The Symmetry requester in both Point and Tile settings*

Point Symmetry works around a central symmetry point in either Mirror (mirror image duplication of each point) or Cyclic (direct duplication at each symmetry point). In Point Symmetry you can select the number of symmetry points by using the **Order** edit field. You can also set the location of the symmetry center by clicking **Place** and then the point on the screen where you want the center of symmetry.

Place lets you position the central point of your symmetrical pattern. To reposition the central point, click **Place**, move the large cross-hair to the new location, and click the left mouse button. Subsequent symmetrical drawing will be centered on the new location.

Use **Tile Symmetry** to create 'tile' patterns. You can set the horizontal and vertical dimensions (in pixels) of the tile size. Tile is useful in creating fill patterns; once you've created your symmetrical pattern, set the Grid to the same spacing as the tiles to pick up exactly one tile as a brush.

- ❖ **Note** Because Tile Symmetry gives immediate feedback as you draw, it replaces the picture beneath each of the tiles in the symmetry. This will effectively destroy any picture that was on the screen before you turned on Tile Symmetry. If you want to use Tile Symmetry to paint over an existing picture, choose Background > Fix from the Effect menu before you turn on Tile Symmetry. This will protect your existing picture from any inadvertent alteration.



MAGNIFY (Keyboard Equivalent: m; Mnemonic: magnify)

The Magnify tool divides the screen into two parts and displays the right-hand side in magnification. This tool is especially useful for detail work. When you are in Magnify mode, you can use any other tool on either side of the screen.

- Click the Magnify tool with either button to select it. Position the Magnify box over the part of the image you want to enlarge and click with either button. In a moment the screen is divided into two parts, with the right part magnified.

You can scroll the magnification window using the arrow keys or the n key, which centers the area under the cursor.

To change the magnification scale click the Zoom tool, to the right of the Magnify Tool. Clicking Zoom with the left button enlarges the magnified area; clicking with the right button shrinks.



ZOOM (Keyboard Equivalent: > enlarge; < shrink)

Changes the scale in Magnify Mode (see Magnify Tool, above). Click the Zoom tool with the left mouse button to enlarge the image and click with the right button to shrink the image.



UNDO (Keyboard Equivalent: u; Mnemonic: undo)

Reverses the last painting action provided there has not been an intervening mouse click.



CLR (Keyboard Equivalent: Shift-K; Mnemonic: Klear)

Clears the screen to the currently selected background color. If you have multiple frames, an Options requester appears for you to indicate which frames you want to clear.

COLOR INDICATOR

Indicates the current foreground and background colors.

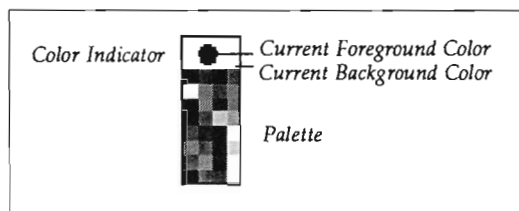


Figure 9.13 *The color indicator with foreground and background labeled*

Clicking the Color Indicator with the left mouse button (or pressing the comma "," from the keyboard) selects the PICK cursor. This lets you select a new foreground or background color by clicking a color on-screen. Click the on-screen color with the left button to select a new foreground color, or click with the right button to select a new background color.

Clicking the Color Indicator with the right button displays the Color Palette requester. Use this requester to mix colors for your palette, to arrange the colors in the palette, and to create ranges for color cycling and gradient fills. See Change Color>Palette in the Picture menu for information about the features in the Color Palette requester.

PALETTE

Clicking a color in the Palette selects that color. Click with the left button to select a new foreground color and with the right button to select a new background color. You can hold down the mouse button and slide the mouse around the palette until you let the mouse button up on the color you want.

You can scroll through the colors in the Palette to select a foreground color by pressing the [and] keys on the keyboard. Shift-[and Shift-] scroll through the available background colors.

To change the colors in your Palette, use the Change Color>Palette option in the Picture menu.

II MENU ITEMS

The menus in DeluxePaint work just like other Amiga menus: point to the Title Bar and press the right mouse button to display the Menu Bar. Then, point to a menu name to open that menu. Finally, drag the arrow down to one of the menu options and release the mouse button to select that option.

Some menu options present submenus to the right side of the option. In these cases, you can drag the highlight down to the option to display the submenu, then drag the highlight to the right and down again to select an option from the submenu.

When we reference a submenu option in this manual, we use the following convention: "Choose (or select) menu option>submenu option from the X menu." So, for example, "choose Change Color>Use Brush Palette from the Picture menu," means display the Picture menu and highlight Change Color. This exposes the Change Color submenu. From the submenu highlight Use Brush Palette and release the mouse button to activate your command.

In many cases, you can select a menu item by using its keyboard equivalent. A table of keyboard equivalents is included as Appendix B at the back of this manual. Before you use a keyboard equivalent, make sure the cursor is not pointing at the Menu Bar or the Toolbox or Palette, or your keystroke will have no effect. One keyboard equivalent deserves special mention: a, the "Again" key invokes your last menu command, whatever it may have been.

The menus, reading from left to right across the Menu Bar, are as follows:



1. PICTURE MENU

Picture	
Load..	
Save..	
Delete..	
Print..	
Flip	
Change Color	
Spare	
Page Size..	
Show Page	S
Screen Format..	
About..	
Quit	Q

The Picture menu lets you save, load, and print your pictures, as well as allowing you to make various global changes to the color palette, screen resolution, and page format. The Picture menu contains the following menu items:

LOAD

Displays the Load Picture requester. To load a file from disk:

- Click the button for the drive you want to load from (for example, df1:).
- Point to the name of the file you want to load, click with the left button, and then click Load. (If you click a subdirectory name you will see all the files in that subdirectory.)

When you load a picture, the loaded picture replaces any existing picture. If you have multiple frames, the loaded picture replaces the current frame.

Clicking the listing “/Parent(DIR)” moves you into the parent directory in which the current subdirectory resides, which may be the root directory.

If you swap disks while the Load Picture requester is displayed, DeluxePaint reads the new disk’s directory but does not display it until you click the drive button. If there are more items in the directory than there is room in the window, you can scroll through the directory by clicking the up and down arrow keys, as appropriate, or by dragging the scroll box up and down.

Click Load to load the selected file, or Cancel if you change your mind.

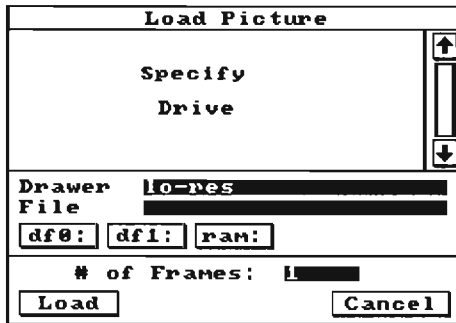


Figure 9.14 *Load Picture requester*

The **# of Frames** edit field near the bottom of the requester lets you load multiple pictures at one time as frames of an animation. The pictures must all be in the same format. If you already have animation frames, those frames are discarded and DeluxePaint creates new frames as you load. (If you want to *add* pictures to your animation without discarding it, you must load the pictures one at a time.) DeluxePaint loads the pictures starting with the picture you selected in the requester and continuing alphabetically down the listing to load the number of frames you requested. This option basically does the reverse operation of the Frames: __ to __ fields in the Save Picture requester.

SAVE

Displays the Save Picture requester. This requester works almost identically to the Load Picture requester, except that it saves the file to disk rather than loading it. To save a picture:

- Choose Save from the Picture menu. In the Save Picture requester, click on a disk button (df0:, df1:, ram:, etc.) to choose the disk you want to save to. Click on the subdirectory listing you want to save your picture in. (Both the drive and directory you selected appear in the Drawer edit field.) Click in the File edit field and type a name for your picture. Finally, click Save to save the file.

You can save in a particular subdirectory by clicking in the Drawer gadget and typing in the subdirectory name, or by clicking the subdirectory name directly from the displayed file names.



When you type in either the Drawer or File edit fields, you can erase the existing type by clicking at the end of the existing name and Backspacing, or by clicking at the beginning of the name and Deleting. You can move over the text without deleting it by using the arrow keys.

You can save a picture under an existing file name by clicking that file name in the file listing, or you can enter a new file name (up to 29 characters long) by clicking the File edit field and typing the name. Whenever you save a picture under an existing name, DeluxePaint displays a requester for you to confirm that you want to overwrite the existing file.

Pictures are saved and reloaded with all their attributes, such as palettes, stencils and perspective information.

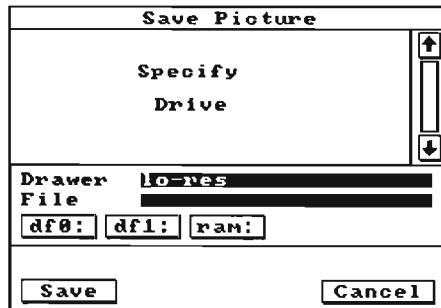


Figure 9.15 *Save Picture requester*

If you have multiple frames when you display the Save Picture requester, the bottom portion of the requester will contain Frames edit fields for you to specify which frames of your animation you want to save. You enter a file name and specify a drawer just as you would when saving a single picture. When you click Save, the frames are saved as separate pictures with a number added to the end of the file name. For example, if you enter 5 to 10 as the frames you want to save, the frames are saved as Filename005 through Filename 010.

DELETE

Displays the Delete File requester, allowing you to delete a file from the disk without leaving the program. This function is useful if you find that your data disk is full and you need to delete a file before you can save

your work. The Delete File requester works just like the Load and Save requesters described above. You can enter a file name by clicking that name in the requester window, or by typing the name directly into the File edit field.

- ❖ *Note* You can use this option to delete *any* kind of file on the disk, not just pictures. Thus, you can delete brushes, animations, etc.

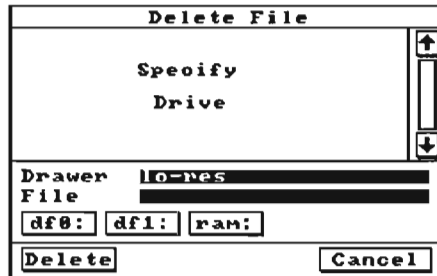


Figure 9.16 Delete File requester

PRINT

Displays the Print Picture requester. Before you start to print a picture, make sure you have selected the correct printer driver from Preferences, and that your printer is connected and turned on. See your Amiga Users Guide for information on printer preferences.

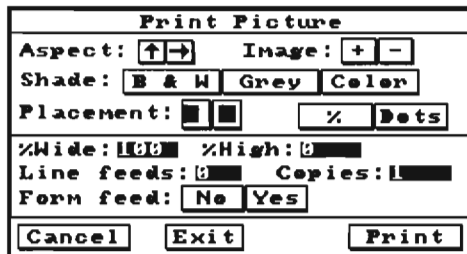


Figure 9.17 Print Picture requester

The Print Picture requester provides the following options:



Aspect: This lets you specify the orientation of the picture on the paper, either Normal, the default, or Sideways. Click the Up-arrow button for Normal or the Left-arrow button for Sideways.

Image: This lets you specify whether the printout will be a positive or negative image. Click the Plus button for positive or the Minus button for negative.

Shade: This lets you specify whether the printout will be in color, in shades of grey, or in black and white. Make sure the setting is appropriate for your printer. If you are using a single-color ribbon, click B & W. If you want to translate your image's colors into shades of grey, use the Grey setting. To print in full color, click Color.

Placement: This option lets you specify whether the picture should be printed against the left margin of the page or centered on the page.

%/Dots: The % option lets you control the size of the printout by specifying the % width and % height of the printout paper. The Dots option lets you specify the size of the printout in terms of the actual printer pixels.

If the % option is active then the following parameters can be specified:

% Wide and % High: These let you change the aspect ratio (the ratio of height to width) of the picture by setting the percentages for each. The default values are 100% Wide and 0% High. 0% is a special case and tells the printer to maintain the same aspect ratio as the screen version of the picture. To change the aspect ratio, leave the % Wide at 100 and enter a new % High value. You can use this feature to compensate for elongated squares and circles that result when you change screen formats. If you just want to shrink the picture while maintaining the same aspect ratio, change the % Wide value and leave the % High value at 0. To change either value, click the appropriate gadget, Backspace or Delete over the existing value, and type in the new one.

If the Dots option is active you can set only the printout width and height in dots.

Line Feeds: Lets you set the number of line feeds you want to insert after a picture is printed. This way you can easily print two pictures on the same page with a specified amount of space in between the pictures.

Copies: Lets you specify how many copies of the picture you want printed.

Form Feed: Lets you set whether or not you want the printer to move to the next sheet of paper before printing each image. This lets you easily print a single picture per sheet of paper.

Cancel if don't want to print and don't want to save any new settings. Click **Exit** if you don't want to print, but want to save your settings to print later. Click **Print** to print the current picture, or once you start printing, you can stop at any time by pressing the Stop button that appears while printing is in progress.

FLIP

As its name implies, Flip lets you flip a picture about its x- or y-axis. If you have multiple frames, you can flip one frame, a range of frames, or all frames of your animation. The following secondary menu items are available under the Flip option:

Horiz

Flips the current picture about the horizontal or x-axis.

Vert

Flips the current picture about the vertical or y-axis.

CHANGE COLOR

The Change Color option presents a secondary menu with options for manipulating the colors in your picture.

PALETTE (Keyboard Equivalent: p)

Displays the Color Palette requester. You can also display the Color Palette requester by clicking the Color Indicator (between the palette and the Toolbox) with the right mouse button. This is the master color control panel, which you use to adjust colors, create spreads of color, and define cycle ranges.

You can move the Color Palette requester around on the screen by pointing to the bar at its top, pressing the left mouse button, and dragging it to the new location.



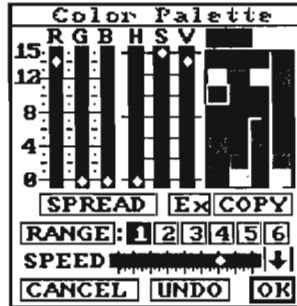


Figure 9.18 *The Color Palette requester*

To select a color, use the left mouse button to click the color either in the requester or anywhere on the page (including the Palette at the bottom right of the screen). The selected color is displayed in the small box in the upper right area of the requester. Use the RGB (for Red, Green, and Blue) or HSV (for Hue, Saturation, and Value) sliders to change the color. (See Tutorial One in Chapter Six: Painting Tutorials for an explanation of color mixing in RGB or HSV.)

The **Copy** button lets you copy a color from one position to another:

- Click the first color, click Copy, then click the position you want to copy into.

The **Ex** button lets you exchange the positions of two colors in the palette:

- Click the first color, click Ex, then click the second color.

If you use Ex to rearrange the colors in your Palette, the resulting screen image will likely be in the wrong colors. You can correct this by choosing Change Color>Remap from the Picture menu. (Note that you should remap immediately after you change the color arrangement in the palette. If you modify the palette a second time without first remapping, you will not be able to remap to the original palette.)

The **Spread** button helps you quickly create a spread of shades between two colors:

- Click the first color, click Spread, and then click the second color.

DeluxePaint creates a uniform spread of colors, taking into account the beginning and ending shades and the number of colors in between.

Defining Ranges

You use the **Range** button to define ranges of color for the color cycling, gradient fill, Shade, and Blend features of DeluxePaint.

- Click one of the six numbered range buttons to choose the range number you are defining. Click the color you want at one end of the range, click Range, then click the color at the other end of the range.

Once you have defined a range of colors, selecting any of the colors in the range selects the entire range for the features that use ranges.

The **Speed** slider lets you control the speed of color cycling for each range. Drag the Speed slider to the left (slower) or to the right (faster). By holding the button down on the slider you can monitor the color cycling right on the page, even if Color Cycling is turned off.

You can control the cycle direction for each range by clicking on the **Cycle Direction Arrow** at the bottom right of the Color Palette requester while that range is selected. This arrow also sets the direction of the range when it is used as a gradient.

You can reverse the last change you made in the Color Palette requester by clicking **Undo**.

USE BRUSH PALETTE

When you load a brush from disk, DeluxePaint continues to use the current picture palette, even though it may be different from the one the brush was created with. Use Brush Palette switches to the brush palette, and includes any information about color cycling that was saved with the brush. If the newly loaded brush uses more colors than the current picture, Use Brush Palette switches to the brush palette and reduces the number of colors to that of the picture palette. It does so by recomputing the palette to match the original as closely as possible with fewer colors. After choosing Use Brush Palette, you can still revert to the original picture palette by using the Restore Palette command (see below).



Compare Use Brush Palette with the Remap command in the Brush menu; this command lets you keep the current picture palette, but maps the brush to the picture palette to match the original brush palette as closely as possible.

RESTORE PALETTE

This option returns you to the palette you were using before the current palette. Thus, if you load a picture with a different palette, Restore Palette reverts to the palette in effect before the load. See Use Brush Palette, above, and Default Palette below.

DEFAULT PALETTE

The default palette is the palette DeluxePaint always uses when you first start the program. The Default Palette command replaces the current palette with the default palette. Note that the palette contains range and cycle speed information as well as the color settings, and all of these settings are replaced when you select Default Palette.

CYCLE (Keyboard Equivalent: Tab)

Toggles color cycling on/off. Color cycling uses the color ranges you define in the Color Palette requester. (See Palette, above). If a color is not included in any range, it does not cycle. See "Animation with Color Cycling" in Tutorial One of Chapter Six: Painting Tutorials.

BG -> FG

Changes all pixels that use the current background color to use the current foreground color. This provides an easy method of changing colors globally—all pixels in the current background color in the picture are changed to the current foreground color. The change occurs on-screen only and does not affect the order of colors in the color palette. Undo does not reverse this change.

BG <-> FG

Swaps all pixels in the current background color with the current foreground color. This is similar to the Bg->Fg option above, except that the change occurs in both directions. The change occurs on-screen only and does not affect the order of colors in the color palette. Like Bg->Fg, above, Undo does not reverse this change.

REMAP

When you create a picture, DeluxePaint "remembers" each color on the screen by remembering its location in the palette. If a picture on the screen was created with a palette other than the current palette (for example, if you have modified the palette since loading the picture), Remap finds the locations in the current palette of the colors it used in the original palette and "tells" the picture to look there for its colors. Bg -> Fg and Bg <-> Fg, above, are special cases of Remap. See also Remap in the Brush Menu, below. Undo does not reverse this change.

SPARE

The Spare option presents a submenu with options that apply to the spare page feature in DeluxePaint. The following secondary options are available under the Spare option:

SWAP (Keyboard Equivalent: j)

Displays the spare page. When you first call it up, the spare page is the standard screen size. If you wish to use a larger page size on the spare page, you will need to make the appropriate selection from the Page Size option (see below). Note, however, that you can increase the size of a page only if you have sufficient memory available. Note also that a spare page uses up memory, even if there is nothing on it.

COPY TO SPARE

Copies the picture on the current page to the spare page. This lets you experiment with your picture on the spare page without fear of losing anything. If you do not have sufficient memory for a spare page, save the image to disk if you wish to experiment with it. If you copy to the spare from a page that is larger than the spare, only the visible portion of the page is copied. If you copy to a spare which is larger than the screen, a copy is made to the spare at the location in the spare that was visible when you last viewed it.

MERGE IN FRONT

Merges the spare page in front of the current page. When the spare page is brought forward, all pixels matching its current background color will appear transparent, allowing images on the current page to show through.



MERGE IN BACK

Merges the spare page in back of the current page. When the spare page is put behind the current one, all pixels which match the current page's background color will appear transparent, allowing images on the spare page to show through.

DELETE THIS PAGE

If you no longer wish to have memory allocated for a second page, use the Delete this Page command to delete the current page (the one currently showing on the screen) and to deallocate the memory set aside for it. Be sure you have saved a copy of the picture you are deleting if you think you may need it later. When you select Delete this Page, DeluxePaint asks you to confirm the deletion, and then switches you to the other page.

PAGE SIZE

Displays the Page Size requester. You can select the page size (in pixels) you wish to work on. Standard is the normal Amiga display size for the selected resolution.

Set Page Size	
Type in size:	
Width: 320	Height: 200
Or select one:	
☒ Standard	320 x 200
☐ Full Page	320 x 340
☐ Overscan	352 x 240
Cancel	Ok

Figure 9.19 *Set Page Size requester*

Full Page gives you a full printed page image (8 1/2 by 11 inches) on most printers. Overscan gives you a full-screen display, thereby letting you create pictures that fill the entire screen. This is particularly useful if you wish to videotape your images. In order to paint on the edges of a full video screen, you need to scroll the image around using the cursor keys or the **n** key unless you set the Screen Format to Overscan (see Screen Format, below). Alternatively, you can view the entire screen by selecting Show Page (see below).

Clicking one of the three settings automatically sets the height and width in the corresponding edit fields. You can also type in any other size you wish by clicking the appropriate edit field, Backspacing or Deleting over the existing value, and typing in the new size. Although DeluxePaint will recognize page sizes up to 1008 x 1024, you would need to reduce the number of colors in your palette to create a picture this large.

SHOW PAGE (Keyboard Equivalent: Shift-S)

Displays your current page in its entirety in a reduced format — for example, in 640 x 400 page size in Lo-Res, it shows only every other pixel. Pressing any key or either mouse button returns you to the current page.

SCREEN FORMAT

This option displays the Screen Format requester. If you select a number of colors that will exceed your available memory, DeluxePaint will retain the format you have selected but use fewer colors. Be sure to save a copy of your current screen before changing screen formats, because once you have reduced the number of colors, the original color information is lost. In addition, note that changing formats eliminates most items from memory, including the Font Directory. The Screen Format requester gives you the following options:

Lo-Res: This is the default setting, giving you a pixel array of 320 x 200. Lo-Res lets you have up to 32 colors on the screen.

DeluxePaint III also supports a special 64 color mode called Extra-Halfbrite. The 64 color Extra-Halfbrite is special in that the first 32 colors in the palette are customizable, whereas the last 32 color in the palette are half intensities of the first 32 and are not directly changeable by the user.

- ❖ *Note* Not all Amiga 1000 computers support Extra Halfbrite. The easiest way to find out whether or not your computer supports this display mode is to try it. Choose Lo Res and 64 colors in the Choose Screen Format requester and look at the Palette (make sure the pointer is not in the Menu Bar or Toolbox). If the last 32 colors are the same as the first 32, your computer doesn't support Extra Halfbrite.



Med-Res: Uses a pixel array of 640 x 200. Pixels in Med-Res format are tall and narrow compared to the other screen formats. This means that if you switch between Lo-Res and Med-Res, objects will become flattened or elongated because of the different pixel shape used by each format. You can compensate for this by using the Double Horiz and Double Vert options from the Brush menu (see below). Med-Res allows up to 16 colors.

Interlace: Uses interlace techniques to double the number of horizontal lines. This produces a flicker that can be avoided by using a high-persistence monitor. The Interlace pixel is wider than it is tall, so moving from Lo-Res or Med-Res to Interlace will flatten images, while moving in the other direction will elongate them. Interlace format allows up to 64 colors on the screen as in the Lo-Res mode.

Hi-Res: Uses a pixel array of 640 x 400. Because Hi-Res also interlaces the horizontal lines, it is subject to the same flicker as the Interlace format. Pixel shape in Hi-Res format is the same as that of Lo-Res. Hi-Res format allows up to 16 colors on the screen. See Appendix A for more information on memory requirements.

Overscan: Puts DeluxePaint's display screen into overscan mode allowing you to view and edit your image in the border area around the normal viewable screen area. If the control panel or menu bar is showing when in overscan mode, the screen is shifted down and to the left to make sure you can see the controls.

If you need to adjust the position of your screen, you can do so by holding down **Ctrl** and using the cursor keys. This saves you the trouble of exiting the program to adjust your screen through Preferences.

The Screen Format requester also gives you the option of retaining the same page size or changing your current screen to the new screen size.

Example #1: Screen — If you start in 320 x 200 screen format and move to 640 x 400 format, your image will fill only one quarter of the screen. If you go from 640 x 400 to 320 x 200, you will only retain the upper left quarter of your image.

Example #2: Keep Same — If you start in 640 x 400 format and move to 320 x 200 format, you will retain the entire image but you will need to scroll the screen to see all of it.

Format:		Number of Colors:	
Lo-Res	320x200	2	16
Med-Res	640x200	4	32
Interlace	320x400	8	64
Hi-Res	640x400		

Overscan

Page Size: Screen Keep Same

Cancel Ok

Figure 9.20 Choose Screen Format requester after program start up

When you first boot DeluxePaint you are presented with a slightly different version of the Screen Format requester.

Format:		Number of Colors:	
Lo-Res	320x200	2	16
Med-Res	640x200	4	32
Interlace	320x400	8	64
Hi-Res	640x400		

Overscan

Program Loading: Swap Load All

Ok

Figure 9.21 Choose Screen Format requester at program start up

The basic difference is that you need to specify how the program is loaded. Clicking on the Load All button causes the entire DeluxePaint program to load into memory, while clicking on the Swap button causes parts of the DeluxePaint program to load into memory as they are needed leaving more memory available for image data.



ABOUT

Displays the program's About requester showing the program version number, the author's name, the copyright notice, and extensive information about the amount of available memory and the size of your animation or animbrush.

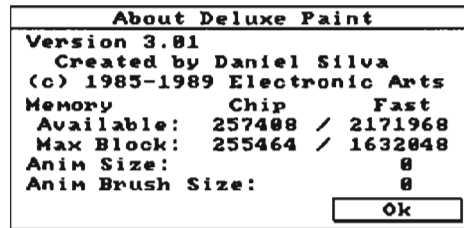
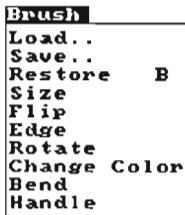


Figure 9.22 *The About box*

QUIT

Exits DeluxePaint.

2. BRUSH MENU

**LOAD**

Displays the Load Brush requester. This is identical in function to the Load Picture requester, except that you are loading brushes rather than pictures. When you load a brush that has a palette different from that of the current picture, the picture palette remains in place.

Nonetheless, the brush palette information is loaded along with the brush; you can change to the brush's palette at any time by choosing Change Color>Use Brush Palette from the Picture menu. If you wish to revert to the previous palette, use Change Color>Restore Palette option.

SAVE

Displays the Save Brush requester. This requester is identical in function to the Save Picture requester (see above). Brushes are saved with their palettes, which includes color cycling information.

RESTORE

Restores your last custom brush if you chose an animbrush, built-in brush, or modified your custom brush using one of the options in the Brush menu. Restore does not reverse the effect of all brush manipulations in the Brush menu. Generally the options that cannot be reversed with restore can be reversed by choosing the option again. For example, Restore does not reverse the Flip>Horiz option, but choosing Flip>Horiz again returns your brush to its previous state.

SIZE

The Size option lets you resize the current brush. The following secondary menu items are available under the Size option:

STRETCH (Keyboard Equivalent: Shift-Z)

Lets you stretch your brush in any direction to any size, larger or smaller than the original. To stretch your brush:

- Choose Size>Stretch from the Brush menu. Hold the left mouse button down and drag the mouse in any direction.

Holding down the **Shift** key constrains the stretch operation so that your brush maintains the same aspect ratio (relative width and height)

- ❖ *Note* Stretching a brush uses up memory; if you try to stretch a brush to a size bigger than the available memory can accommodate, the brush will snap back to its original size.

HALVE (Keyboard Equivalent: h)

Reduces the size of your brush by 50% in both dimensions.

DOUBLE (Keyboard Equivalent: Shift-H)

Doubles the size of your brush in both dimensions, for a quadrupling of the total area.

DOUBLE HORIZ

Doubles the size of your brush in the horizontal dimension. This option is useful for reportioning images that you created in Lo-Res and then moved to Med-Res.



DOUBLE VERT

Doubles the size of your brush in the vertical dimension. This option is useful for reproportioning images that you created in Med-Res and then moved to Lo-Res.

FLIP

As its name implies, Flip lets you flip a brush about its x- or y-axis. You can perform this operation on animbrushes and all frames of the animated brush will flip. The following secondary menu items are available under the Flip option:

HORIZ (Keyboard Equivalent: x)

Flips the current brush about the horizontal or x-axis.

VERT (Keyboard Equivalent: y)

Flips the current brush about the vertical or y-axis.

EDGE

Modifies a one pixel boundary around the current brush. The following secondary menu items are available under the Edge option:

OUTLINE

Adds a one pixel boundary around the current brush using the current foreground color. Ideal for outlining text.

TRIM

Deletes a one pixel boundary around the current brush.

ROTATE

The following secondary menu items are available under the Rotate option:

90 DEGREES (Keyboard Equivalent: z)

Rotates the current brush clockwise 90 degrees.

ANY ANGLE

Lets you rotate the current brush any number of degrees.

- Choose Rotate>Any Angle from the Brush menu. Hold the left button down and drag the rectangular outline about its bottom left corner. Release the button at the desired orientation.

If you select this option more than once, your brush reverts to its original orientation before you rotate it again.

SHEAR

This option gives you controlled distortion of the current brush. When you choose Shear, the top part of the brush is anchored, and you can drag the bottom of the brush in either direction.

CHANGE COLOR

Use this option to modify the current brush colors. The following secondary menu items are available under the Change Color option:

BG -> FG

Changes all pixels in the brush that are in the current background color into the current foreground color. This provides an easy method of making a global color change — all instances of the background color in the brush are changed to the current foreground color. Because you can select any color in the brush as either the foreground or the background color at any time, you can make intricate color changes easily. This operation affects the brush colors only and does not affect the picture or the order of colors in the palette.

BG <-> FG

Swaps the current background color in the brush with the current foreground color. This is similar to the Bg->Fg option above, except that the change occurs in both directions. The change affects the brush colors only and does not affect the picture or the order of colors in the palette.

REMAP

Use Remap when you load a brush that uses a palette different from the current palette. Remap looks at the colors used in the brush and tries to find the closest fit within the current palette. This option is different



from Use Brush Palette in that it does not change the picture palette. Instead it changes the palette locations the brush looks at for its colors. You can perform this operation on animbrushes and all frames of the animated brush will be remapped.

CHANGE TRANSPARENCY

Lets you change the transparency of the currently selected brush to the current background color.

BEND

Use this option to bend a brush horizontally or vertically:

HORIZ

Lets you bend the current brush in a horizontal direction.

- Choose Bend>Horiz from the Brush menu. With the left mouse button held down, drag the brush outline left or right until it is the desired shape. Release the mouse button.

The vertical position of the cursor to the brush determines where the brush bends.

VERT

Lets you bend the current brush in a vertical direction.

- Choose Bend>Vertical from the Brush menu. With the left mouse button held down, drag the brush outline up or down until it is the desired shape. Release the mouse button.

The horizontal position of the cursor to the brush determines where the brush bends.

HANDLE

Lets you specify whether the cursor holds a custom brush by its center (the default), by one of its four corners, or by an offset position you define. Use the keyboard commands to change your brush handle when you need to move your cursor without moving the brush. You can move the brush handle with the mouse button *down* this way.

The three options in the submenu are as follows:

CENTER (Keyboard Equivalent: Alt-s)

Positions the arrow cursor at the center of the brush.

CORNER (Keyboard Equivalent: Alt-x and Alt-y)

Positions the arrow cursor at one of the four corners of the brush. If you have a custom brush currently held at the center, selecting Corner moves the arrow cursor to the lower right corner of the brush. If Corner is already selected and you select it again, the handle will move clockwise to the next corner position.

The location of the arrow cursor the next time you pick up a brush depends on the direction you drag the mouse when you pick up the brush. If you drag down and to the right, the cursor will remain at the lower right. If you drag up and to the left, the cursor will move to the top left. The same principle applies if you drag down and to the left or up and to the right. In other words, the corner you drag to is the one the arrow cursor will attach to.

Corner is particularly useful in perspective mode (see Effects menu, below).

PLACE (Keyboard Equivalent: Alt-z)

Lets you position the brush handle at an arbitrary x,y offset from the brush. To place the handle:

- Pick up your brush. Choose Handle>Place from the Brush menu. Hold down the mouse button and drag in any direction to offset the cursor from the brush. When you release the mouse button, the cursor will hold the brush as you specified.



3. MODE

Mode	
Matte	F1
✓Color	F2
Replc	F3
Smear	F4
Shade	F5
Blend	F6
Cycle	F7
Smooth	F8
Tint	
HBrite	

The Mode menu contains options for different brush modes. These modes determine which color or colors in your brush are used when you paint. Note that, with the exception of Shade, none of these modes affect the color used when you paint with the right mouse button. With the exception of Shade mode, the right mouse button always paints using the current background color in Color mode. The following secondary menu items are available under the Mode option:

MATTE (Keyboard Equivalent: F1)

Uses a custom brush in its original form. Those areas of the brush matching the background color in effect when the brush was first created are transparent. This is the default mode when you create a custom brush using the Brush Selector.

COLOR (Keyboard Equivalent: F2)

Uses the shape of the brush and fills it with the current foreground color. Those areas of the brush matching the background color in effect when the brush was created remain transparent.

REPLC (Keyboard Equivalent: F3)

Uses the brush in its original form (i.e., Matte, see above), except that no colors are transparent.

SMEAR (Keyboard Equivalent: F4)

With Smear selected, you can smear any colors on the page by dragging a brush over them. This is like smearing a wet watercolor with your fingers, so the bigger the brush, the more pronounced the effect. Smear uses only the colors under the brush, and does not add any new colors. Current brush color is irrelevant.

SHADE (Keyboard Equivalent: F5)

With Shade selected, you can create subtle shading effects on those colors in your picture that are in a cycle range. Like Smear (above), Shade ignores the current brush color but uses its shape. By dragging the brush over those colors in your picture that are in a currently selected cycle range, you can paint over each color with the next color in the range. You

can paint with the next-higher color by using the left mouse button, and the next-lower color by using the right mouse button. "Higher" and "lower" are relative to the color under the brush at the time. If the current foreground color is in a cycle range, Shade has no effect on colors outside that range. If the current foreground color is not in a cycle range, Shade treats the entire palette as a cycle range. (A range is selected if one of its members is selected as the foreground color. A color that is a member of two ranges selects the first of those two ranges.)

BLEND (Keyboard Equivalent: F6)

Like Smear, above, Blend affects the colors under the brush by running them together. Unlike Smear, however, Blend uses additional shades by averaging the blended colors, whereas Smear uses only the colors under the brush. Thus, when you Blend two shades by painting over them, you are selecting a third shade from the palette, the closest one the program can find to the average of the two original shades. If you select a foreground color outside of a cycle range, Blend treats the entire palette as a cycle range. If you select a color within a cycle range, Blend only affects those colors on the screen that are within that range.

CYCLE (Keyboard Equivalent: F7)

Uses the current brush shape and cycles through all the colors in the currently selected range as you draw. A range is selected if one of its members is selected. If a color is a member of two ranges, selecting it selects the first of those two ranges. If your current brush color is not within a cycle range, it paints with that color only. Use MultiCycle (in the Prefs menu) to achieve the same effect with a multicolored brush, where each color in the brush cycles through its range independently of the others.

SMOOTH (Keyboard Equivalent: F8)

Reduces the contrast between two adjoining areas. DeluxePaint finds colors in the palette between the two bordering colors and paints the boundary in intermediate shades. Smooth looks at the current palette and finds the colors closest to the ones under the brush. Thus if the palette contains a wide selection of colors close to the ones under the brush (e.g., the selection of greys in the default palette), it will have more colors to draw from to create its weighted averages. Useful for creating airbrush effects by smoothing out contrasting boundaries, or for eliminating jagged edges.



TINT

Replaces the hue and saturation of the affected pixels with the current color but leaves the value of the screen pixels unaffected. This option is available only with built-in brushes.

HBRITE

This mode is only available if you are using 64 colors (Extra Halfbrite mode). When you are in HBrite mode, painting with the left mouse button darkens colors on your painting to their halfbrite equivalent; painting with the right button lightens colors that are halfbrite. This mode is especially useful in pictures with shadow and highlight effects.

4. ANIM MENU

Anim Load.. Save.. Move.. Frames Control Anim Brush Method
--

LOAD

Displays the Load Anim requester. This requester works the same as the Load Picture requester described earlier in this chapter. When you **Load** an animation, the loaded animation replaces the one currently in memory. When you **Append** an animation, the appended animation is added to the end of your current animation.

It is also possible to load individual pictures into the frames of your animation using the Load Picture requester. See Load in the Picture menu for information about loading pictures into your animation.

If you click the left mouse button as DeluxePaint begins to load your animation, the palette temporarily changes to all greys so that you don't see the animation frames loading. This is useful if you are showing animations on your Amiga and don't want your audience to see the frames before you load them.

SAVE

Displays the Save Anim requester which is similar to the Save Picture requester described above. This requester works the same as the Save Picture requester described earlier in this chapter.

MOVE...

Displays the Move requester. Use this requester to define a path along which your brush is painted in 3D, either on a single frame, or while stepping through an animation sequence.

To use the Move Requester:

- Stamp your brush on the screen at the starting position you want. Choose Move from the Anim menu. Enter the Move and Angle settings you want. Set the Count edit field to the number of frames over which you want to animate the brush. Select the Direction of your Move and Record. Select any other settings that apply to your animation. Click Draw to paint the animation with the settings you specified.

Move					
Dist:	X	Y	Z		
Angle:					
Clear Go Back CYCLIC				BRUSH	
Ease-Out:		Direction: Move Record			
Ease-In:		→ ← ↗ ↖			
Count:	10	» «			
Preview		Trails Fill Draw			
Cancel			Exit		

Figure 9.23 *The Move requester*

The Move requester presents the following settings:

Move: The Move edit fields let you specify the total distance that the brush will move along the X, Y, and Z axes in your animation.

You can set the brush to move along the Brush axes or the Screen axes by using the button to the right of the Move edit fields.

Angle: The Angle edit fields let you specify the total angle, in degrees, that the brush will be rotated about the X, Y, and Z axes.

You can set the brush to rotate around the Brush axes or the Screen axes by using the button to the right of the Angle edit fields. The default



setting is Brush, in which case the rotation is always based on the brush coordinate system. Note that the brush coordinate system will change during the course of a Move if you are rotating on more than one axis.

If you set this option to Screen (non-Brush), any angle rotation takes place along the current axes of the screen coordinate system. The "Screen" rotation system is an Euler (pronounced *oiler*) system and the order of rotation is always X, Y, and Z. When you rotate on more than one angle, or when the brush has been rotated previously, the rotations produced by the Screen angle system are not always around the axes that are used for the Distance moves along the Screen axes. Generally it is best to think of the Screen angle rotations as "non-Brush" rather than Screen.

- ❖ **Note** All rotations occur around the brush handle. If you want your brush to appear as though it is orbiting around a point away from the brush, you would want to offset the handle from the brush.

Brush: Use these buttons to select whether the Dist and Angle movements are relative to the brush's coordinate system (on) or to the screen coordinate system (off).

Ease-Out: Use this edit field to set the number of frames over which you want the brush motion to gradually accelerate.

Ease-In: Use this edit field to set the number of frames over which you want the brush motion to gradually decelerate.

Count: Use this edit field to set the number of times the brush is painted to complete the total movement and rotation as specified by the move and angle edit fields.

Clear: Click this button to zero out all of the Move and Angle numbers.

Go Back: Click this button to restore the starting position of the brush for the next movement to the last place you manually clicked it down.

Cyclic: Turn this button on if you are creating an animation that is cyclic (that is, one that starts and ends at the same position.)

For example, if you have 10 frames, and you want a brush to rotate 360 degrees over the 10 frames to make it look as though it is spinning when

you play the animation, you would turn Cyclic on. DeluxePaint III would calculate the rotation to end on the 11th frame (which in this case would be the 1st frame). The result is that the brush is not rotated to a full 360 degrees on Frame 10. Instead, the brush reaches 360 degrees on Frame 1. DeluxePaint doesn't paint the brush on the last frame, since it's position would normally be the same as your original frame, but it does move forward to that frame and positions the brush in the event that you want to click it down.

Direction: The buttons in the Direction area of the requester control the direction of your move and the order in which the frames of the animation are painted.

Move lets you choose to have a move drawn in one of two ways:

-  **Go From** starts the movement of the brush from the point where you stamped your brush (indicated by the large dot) and paints forward.
-  **Come To** starts the animation at an earlier frame and moves the brush forward to the point where you stamped your brush.

Record lets you choose the order in which the frames of the brush move are painted. These buttons are available only if you have more than one animation frame.

-  **Forward** paints the move by stepping forward from the point where you stamped your brush. This is the default setting and the one you will use most often.
-  **In Place** paints all of the move on the current frame.
-  **Backward** paints the move in reverse order by advancing to the last frame and painting backwards. This option is useful when you are using the Trails button.

Preview: Click this button to view the move you have set up in "wire-frame" mode. When the preview is complete, or when you hit the space bar to stop it, you are returned to the Move requester.

Trails: This button is available only if you have more than one animation frame allocated. Clicking this button is like clicking on the Draw button except on each frame you get the sum total of all of the draws up to this point. The net effect is that of leaving "trails" of the brush as it moves.



Fill: This button works like draw, except that when you click it, the move you specified is used to draw a filled perspective plane based on the rotation of the current brush.

Draw: Click this button to execute the move that you have specified, causing the brush to be drawn into animation sequence.

Cancel: Click on this button to restore any settings that have been changed and exit this requester.

Exit: Click on this button to exit the requester and keep all of the settings that you have entered.

FRAMES

This option presents a submenu of options for manipulating the frames in your animation. The following options are available under the Frames submenu:

ADD FRAME

Adds an animation frame after the current frame, copies the contents of the current frame to it, and makes this new frame the current one.

SET # ..

Displays the Set Frame Count requester. DeluxePaint will try to allocate as many frames as are requested. If there is not enough memory to allocate the requested number of frames, DeluxePaint will allocate as many as memory will allow.

This requester works as though you chose Add Frame or Delete Frame several times. This means that you can add several frames to the middle of your animation by stepping to the frame you want to add frames *after* and changing the number of frames to the current count plus the number of frames you want to add. You can delete several frames from any point in your animation by stepping to the first frame you want to delete and changing the number of frames to the current count minus the number of frames you want to delete. For example, if you have 100 frames and you want to delete frames 41 to 50, step to frame 41 and set the number of frames to 90.

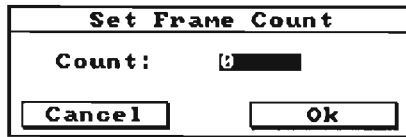


Figure 9.24 *Set Frame Count requester*

COPY TO ALL

Copies the picture in the current frame to all of the animation frames.

DELETE FRAME

Deletes the current frame and makes the following frame the current frame unless you are already at the last frame.

To delete frames at the end of the animation sequence, position to the last frame and then execute Delete frame as many times as the number of frames you want to discard.

DELETE ALL

Deletes all of the animation frames.

CONTROL

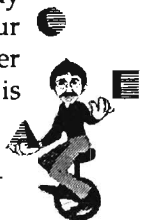
The Control option displays a submenu of options for moving around in your animation frames and for playing the animation. The following options are available under the Control submenu:

SET RATE ..

This option displays the Set frames per second requester. You can set the initial frames-per-second rate by entering a number in the edit field and clicking Ok. If you use the left and right arrow (cursor) keys to slow down or speed up the play of your animation, the number in this requester also changes.

SET RANGE ..

Displays the Set Play Range requester. You can set the play range to play any range of frames in your animation or to play all frames in your animation. Note that the From number in your range must be smaller than the to number for the range to play correctly. The range setting is



used by the Play Once and Ping Pong options in the Control submenu, but Play is not affected.

This option is especially useful if you are editing a small section of a large animation. You can edit the frames and play only the frames you are editing to see your changes.

PREVIOUS

Steps the current frame to the previous frame in the animation sequence. If the current frame is the first frame, the position is set to the last frame.

NEXT FRAME

Steps the current frame to the next frame in the animation sequence. If the current frame is the last frame, the position is set to the first frame.

GO TO ..

Displays the Go to Frame requester. This requester lets you position the current frame to any of the available animation frames.

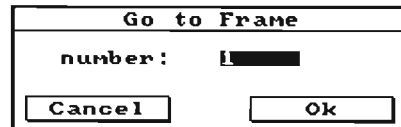


Figure 9.25 *The Go to Frame requester*

PLAY

Plays the animation. The animation sequence will continue cycling until the space bar is pressed. (You can reverse the direction of playback by pressing **r** on the keyboard while the animation is playing.)

PLAY ONCE

Plays the animation sequence once through from Frame 1 to the last frame.

PING-PONG

Plays the animation sequence continuously as in Play above, but plays the sequence forward then backward then forward then backward and so on.

ANIMBRUSH

An animbrush is a special type of brush that has more than one frame associated with it. The following options are available under the Animbrush submenu:

LOAD ..

Displays the Load Animbrush requester. This requester is identical in function to the Load Picture or Load Brush requesters described earlier in this chapter, except that you are loading an animbrush. See, Load in the Picture and Brush menus.

When you load an animbrush that has a palette different from that of the current picture, the picture palette remains in place. Nonetheless, the brush palette information is loaded along with the brush; you can change to the brush's palette at any time by choosing Change Color>Use Brush Palette from the Picture menu.

SAVE ..

Displays the Save Animbrush requester. This requester is identical in function to the Save Brush requester described earlier in this chapter.

PICK UP

Selecting this menu option is the same as selecting the rectangular brush capture tool except the animbrush you capture will have as many "frames" as the current number of frames in the animation sequence.

When you paint with an animbrush, the brush cycles through its frames automatically as you paint. The brush will continuously cycle on the current animation frame unless you hold down the left Amiga key (the Commodore key on Amiga 500 and 2000) when you press the mouse button down, in which case the brush will paint each of its frames separately into each of the animation sequence frames.

You can use an animbrush with any painting tool, just as you would use any custom brush.

SETTINGS ..

This menu option displays the Animbrush Settings requester. You use this requester to control the animbrush.



Number of cels shows you how many cels of animation are in your animbrush.

Duration lets you set the number of frames it takes the animbrush to move completely through its cels. You can also think of this as the rate at which the animbrush transforms. For example, if your brush has 10 cels and you set duration to 20, your brush will stamp each of its cels twice before flipping to the next cel.

Current lets you type in the value for the brush cel you want to start with. This is very useful if you want to continue painting from a particular cel of your brush.

You can also step backward and forward through the cels of your animbrush by using the **7** and **8** keys along the top of the keyboard. **Shift-7** steps to the first cel, and **Shift-8** steps you to the last cel.

Direction gives you options of flipping forward, flipping backward, or ping-ponging through the cels of your animbrush as you paint.

USE

Make the last Animbrush “picked up” the current brush. This allows you to pick up an animbrush, then pick up a regular brush, and then return to your animbrush. You can also restore your animbrush by clicking the Brush Selector with the right mouse button; this toggles between your standard custom brush and your animbrush.

FREE

Releases the memory used by the current Animbrush. Note that you cannot get the brush back once you free it! (If at any time you think you are low on memory, before you throw away brushes or frames, press **Ctrl-a**; this displays a requester with information about available memory.)

METHOD

The following two submenu options of the Method menu are used to specify the “memory model” of the animation sequence frames.

COMPRESSED

The Compressed Method, while a little more complex than the Expanded Method, offers the advantage of permitting many more animation frames in memory at one time. The compressed memory model only needs enough memory to store the differences between frames. While this model allows for more frames, it has a couple of disadvantages: it is slower than the expanded method while animpainting, loading and saving are slower, and memory tends to fragment, making it easy to run out of memory.

EXPANDED

The Expanded Method represents the simplest of the two memory models where all of the memory for each animation frame is allocated. If you are in low resolution mode, 320 x 200, and you have 10 animation frames, then you would need enough memory to hold 10 complete 320 x 200 images. Two advantages of this method are that the frame flipping for animpainting is very smooth, and you will not run out of memory to add an element to your animation within the allocated frames.

5. EFFECT MENU

Effect
Stencil
Background
Perspective

The Effect menu lets you create stencils, “freeze” the background, and define planes for the purposes of perspective drawing.

STENCIL

You create a stencil of an image by “locking” the colors that comprise that image. This allows you to paint around the image without painting on it, as though it were protected by a stencil or frisket. Additionally, a stencil will apply to the brush when it is captured. Whatever colors in the brush which were locked when the stencil was made become transparent in the brush.

MAKE .. (Keyboard Equivalent: ~, directly below the ESC key)

This displays the Make Stencil requester. You can reposition the requester anywhere on the screen by dragging it by the bar at its top. To make a stencil:



- Click the colors to use in creating the stencil with the left mouse button. You can select colors by clicking in the palette display in the requester or by clicking the colors on-screen (including the on-screen palette). When you have clicked all the colors you want to protect, click Make.

The colors you select define a mask that protects an area from being painted. The shape of the stencil is what is created and saved, not the color information, which means you can change the colors of a "stenciled" shape, and still retain the stencil.

If you have several animation frames, DeluxePaint automatically re-makes the stencil as you move from one frame to the next, either manually or while using the Move requester.

Clear clears the current color selections in the requester.

Invert inverts the current color selections. This is useful if you want to mask more colors than you want to leave unmasked.

When you have a stencil active, an "S" appears in the Menu Bar.

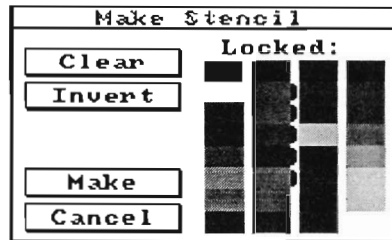


Figure 9.26 *Make Stencil requester*

REMAKE

When you have a stencil active and you apply colors to your picture, the colors you apply are not protected, even though they may be locked in the Make Stencil requester. You can lock newly-applied colors by bringing up the Make Stencil requester and clicking Make, or by selecting Remake from the Stencil submenu.

- ❖ **Note** If you have several animation frames and you make a stencil, DeluxePaint automatically remakes the stencil as you move from one screen to the next.

LOCK FG

The Make Stencil requester lets you create stencils based on colors in the palette. By locking a color, you make it impossible to paint on that color, wherever it may be on the page. By using a combination of Fix Background (see below) and Lock FG, however, you can define a stencil by area rather than color. When you select Lock FG, you define as a stencil those areas on the page that you have painted since fixing the background, regardless of the color of those areas.

REVERSE

Has the same effect as clicking Invert in the Make Stencil requester (see Make, above).

ON/OFF (Keyboard Equivalent: `, directly below the ESC key)

Toggles the stencil on and off. This maintains the stencil but turns it off temporarily so you can paint on the protected colors.

FREE

Creating a stencil uses memory, even though you may have it turned off (see On/Off, above). Free deletes the stencil and deallocates the memory it was using.

LOAD ..

Stencils can be loaded as separate items. They are full screen only, and can be loaded only to the position they occupied when they were created. In other words, you cannot create a page larger than screen size and load the stencil into the middle of the page. The Load requester is identical to all other Load requesters (see Load in the Picture menu, earlier in this chapter).

SAVE ..

You can save stencils just as you can any other file, such as pictures or brushes. The Save requester for stencils is identical to those for other types of files (see Save in the Picture menu, earlier in this chapter).



BACKGROUND

FIX

Fixes the background by “locking” the current picture, while allowing you to draw on top of it. You can erase any paint you have applied since fixing the background by clicking CLR or by painting with the right button, without fear of losing any of the background. Fixing the background uses additional memory. Note that when the background is fixed you cannot pick up any colors from that background.

FREE

This “unlocks” the background, so that clicking CLR will clear the entire picture. It also frees up the memory that was allocated to saving the background.

PERSPECTIVE

The Perspective submenu contains options for manipulating a brush in three dimensions. The following is a summary of the Perspective submenu:

DO (Keyboard Equivalent: Enter)

Puts you into perspective mode. Your brush is represented by a four-cell matrix which you can manipulate through keypad commands (listed later in this section). The amount of rotation for each of the three axes x, y, and z is given in degrees at the right-hand side of the menu bar. The center of perspective (see Center, below) is indicated by a cross-hair. You can paint an image of the rotated brush at any time by clicking the left mouse button.

To exit perspective mode, click one of the drawing tools, such as the continuous or dotted line tool.

FILLSCREEN (Keyboard Equivalent: Keypad Minus)

Fills the screen with the current brush, in its current state of rotation in 3D. The entire brush size (not just the opaque part) is the default size for the Perspective Fill pattern.

RESET (Keyboard Equivalent: Keypad 0)

Resets the brush to its original state before rotation, and returns all of the settings in the Perspective Settings requester to their defaults (see Settings, below).

CENTER (Keyboard Equivalent: Keypad . Period)

Allows you to set the perspective center or horizon in your perspective "landscape."

- When you select Center, your cursor changes into a large cross-hair. The smaller, stationary cross-hair on the screen indicates the existing center. Move the large cross-hair to the new center you want and click either mouse button.

Once you have set the perspective center, the position of the unrotated brush relative to that center determines the position of the perspective plane when you rotate the brush. The greater the distance above or below perspective center, the less pronounced the perspective effect.

SETTINGS

Displays the Perspective requester. When you are in Perspective mode, you can also display this requester by clicking the Grid tool with the right mouse button.

Perspective		
Grid:	X k/2	Y k/2
	Z k/2	
From brush		
Angle Step:	10	
Type:	Screen Brush	
Anti-Alias:	None Low High	
Display:	Angle Pos	
Cancel		Ok

Figure 9.27 *Perspective requester*



The following options are available:

Grid: You can use these edit fields to set the dimensions for a grid in three-dimensional space. When you first open the requester, the numbers in these fields correspond to the dimensions of your brush; the Z dimension automatically takes the same value as the Y dimension. It is important to remember that the entire brush size (not just the opaque part) is the default size for Perspective Grid and Perspective Fill.

From Brush Clicking this button sets the X and Y grid values to correspond to the width and height of the brush. This is the quickest way to restore the perspective grid settings to the same dimensions as your brush without affecting any other settings.

Angle Step specifies the rotation increment used in conjunction with the Shift key and the appropriate keyboard rotation key (see Perspective Rotations, later in this section). This value defaults to 90°.

Screen, the default mode, uses the screen coordinate system when rotating the brush on the x, y, and z axes. (If you are familiar with coordinate systems, you will know this coordinate system as the Euler method, which measures all three angles of rotation from absolute zero.)

Brush, rotates the brush relative to the current brush coordinate system.

Anti-alias: Anti-aliasing smooths the jagged lines in a brush that result from rotating or shrinking it in Perspective mode. You'll get better perspective anti-aliasing if the palette contains colors in-between (as orange is between red and yellow) those at the edges being anti-aliased.

None, Low, and High set the level of anti-aliasing used on your brush when you paint in Perspective mode. None is the default setting and applies no anti-aliasing. Low lets you eliminate some of the jagged outline on your perspective brush. The cost of removing jagged lines is painting speed, but it is still faster than smoothing out an image by hand. To use anti-aliasing, select either Low or High (see below) before you lay down the brush image. Anti-aliasing is most effective when you have reduced the size of your original brush (for example, by moving it back along the z-axis). Anti-aliasing in the High setting can be very slow if your brush or fill area is large.

Display: The **Angle** and **Pos** buttons let you choose whether the menu bar displays the angles of rotation or the position of the brush in three dimensional space. Note that if you have **Coords** in the **Prefs** menu turned on, the menu bar shows two dimensional coordinates; be sure to turn **Coords** off if you want to see three dimensional coordinates.

PERSPECTIVE ROTATIONS

All perspective rotations are controlled through the keypad on your keyboard.

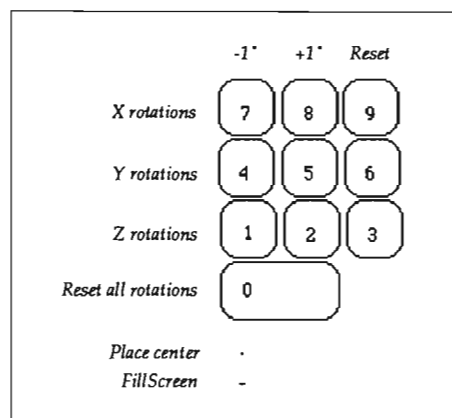


Figure 9.28
Perspective rotation and settings using the keypad

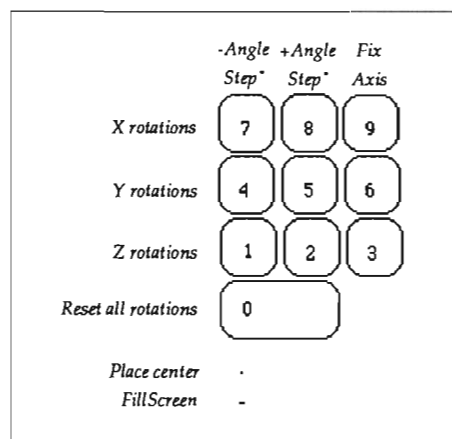


Figure 9.29
Perspective rotation and settings using Shift with the keypad



Pressing Keypad 0 resets all three axes to zero and fixes the z-axis (see below), but retains the apparent distance settings. Pressing Keypad 0 in conjunction with the Shift key resets all perspective values to the default (boot-up) state, including resetting the perspective center.

OTHER PERSPECTIVE KEYBOARD COMMANDS

Ctrl temporarily fixes the Y axis so that you can move the brush forward or backward in 3D space by moving the mouse forward or backward.

The ; and ' keys move the brush plane forward or back along its fixed axis (see below) without changing its orientation, moving it in a direction perpendicular to the brush plane. This is the same effect described in the above discussion on brush position prior to rotation. Thus, with the z-axis fixed, brush position relative to the perspective center at the moment of rotation determines the brush's distance above or below eye level. You can achieve the same effect after the brush is rotated by using the ; and ' keys to move it forward or back along its z-axis. Pressing these keys with the Shift key held down results in larger increments of movement. In addition, you can modify the apparent distance from the observer by pressing the < and > keys (i.e., the Shifted "," and "." keys). Thus, when the apparent distance is great, the perspective foreshortening is at a minimum, becoming greater as apparent distance decreases.

FIXING AXES: Whenever you start in perspective mode, the z-axis (the one perpendicular to the screen) is "fixed," that is, the mouse does not move the brush through that axis. You can selectively fix any axis, as follows:

To fix the x-axis, press Shift-Keypad 9

To fix the y-axis, press Shift-Keypad 6

To fix the z-axis, press Shift-Keypad 3

As noted above, you can move along the axis that is currently fixed by using the Shifted or un-Shifted ; and ' keys (use the Shifted keys for larger increments). You can also temporarily fix the Y axis by holding down the Ctrl key.

6. Prefs MENU



The Prefs menu contains a list of options that you can turn on or off to suit your working habits. When you choose one of these options, a star appears to the left of the option to indicate that it is on. Choosing the option again turns the option off and removes the star. When you start DeluxePaint for the first time, only the AutoGrid option is on.

Customizing Your Prefs Menu

If you want, you can customize your working copy of the DeluxePaint program to start with the preference settings set the way you like them. For example, you might like to have Coords turned on automatically when you start the program. To customize the preferences, you use the Tool Types feature of Info in the Amiga Workbench. Here's how:

- Boot your Amiga. Insert your working copy of the program disk. Select the DeluxePaint program icon. Choose Info from the Workbench menu.

The above steps produce the Info requester. In the bottom half of this requester you'll see a field for Tool Types with arrows for scrolling and ADD or DEL buttons. To turn a preference option on:

- Click the ADD button. Type the name of the preference you want to turn on. (Type it exactly as it appears in the Prefs menu.) Press Return.

To turn a preference option off, display that preference name in the edit field by clicking the up or down arrow to the left and click DEL.

- To exit the Info requester and save your changes, click Save in the lower left corner of the requester.

COORDS (Keyboard Equivalent: $\downarrow$, directly below the F10 key)

This option turns on the coordinate display in the upper right-hand portion of the Menu Bar. Moving the mouse without holding a button down displays the current position of the cursor, with the origin (0,0) set to the upper left-hand corner of the screen. Pressing and holding down either mouse button temporarily resets the origin to the current cursor



position and displays the displacement value from that temporary origin as you move around the screen. The readout is scaled in pixels.

FAST FB

Fast feedback. Use this when working with large or complicated brushes while using the line or unfilled shape tools. Fast FB lets you draw your lines or shapes using the smallest (one-pixel) brush for feedback, and then completes the design using the currently selected brush. This increases response speed while you are drawing, but does not affect the final image. Toggle Fast FB off by selecting it a second time.

MULTICYCLE

Use this in conjunction with the Cycle paint mode in the Mode menu (see above). When MultiCycle is turned off (the default state), using the Cycle paint mode with a multicolored brush treats the brush as though it were a single color (the current foreground color). With MultiCycle turned on, painting with a multicolored brush in Cycle mode cycles each color in the brush, provided the color is in a cycle range.

BE SQUARE

Because the Amiga's pixels are not perfectly square, circles and squares drawn with the shape tools are not perfectly round or square. If you wish to draw "true" circles or squares, select Be Square from the Prefs menu. This will square all the built-in brushes, the appropriate shape tools, and symmetry. Be Square does not square gridding or perspective, and should be turned off in those modes.

WORKBENCH

Toggles the workbench off and on.

EXCLBRUSH

If you pick up a brush with Excl Brush (and the Grid) selected, you will exclude a one-pixel border on the right and bottom edges of your brush (see Figure 9.30). This is useful if your brush has a colored border around it and you want to use the brush to create a pattern fill or perspective fill

(using the Fill Type requester). When DeluxePaint creates your pattern, the border will be uniform throughout instead of being twice as wide where one copy of the brush is placed next to another.

❖ **Note** Excl Brush has no effect on brush pick-up when the Grid is off.

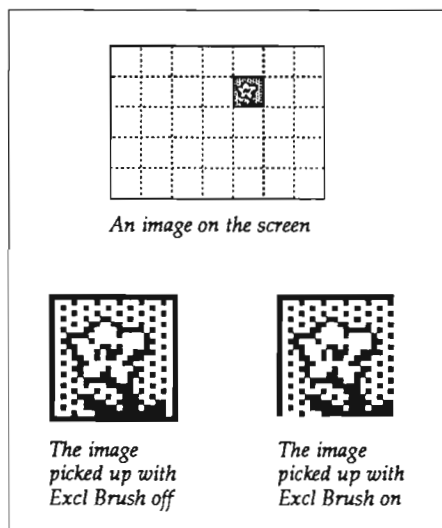


Figure 9.30 An example of using ExclBrush

AUTOTRANSP

Modifies the brush pickup so that it automatically determines the transparent color by looking at the corners of the capture rectangle or the points of the polygon to see if they are the same color. If the four corners are the same color, that color becomes the transparent color, otherwise the current background color remains the transparent color.

NO ICONS

When NoIcons is on, your files are saved without the icon "info" files. This option is useful if you don't ever expect to launch an application by double-clicking on a picture file. Saving without the icons is a good way to save space on your disks.



AUTOGRID

When AutoGrid is on, the perspective grid is automatically resized to match your custom brush when you load or pick up a custom brush. This is the same as if you had clicked From Brush in the Perspective requester. When AutoGrid is off, the perspective grid is not automatically resized. Note that this option affects only the grid in Perspective, not the standard grid.

7. USER FEEDBACK IN MENU BAR

Painting Mode: Displays the current painting mode (Matte, Color, Replc, Smear, Shade, Blend, Cycle, Smooth) at the center of the Menu Bar. See Mode menu, above, for information on painting modes.

Color Fill Box: This box (to the right of center on the Menu Bar) displays the currently selected fill pattern, or perspective fill or gradient fill. The Color Fill Box previews the pattern or gradient you will get when you fill a shape. The Color Fill Box is absent if fill mode is set to normal. See discussion under Fill tool, below, for more information on the Fill Type requester.

S: This notation appears to the right of center on the Menu Bar when a stencil is active.

B: This notation appears to the right of center on the Menu Bar when the background is fixed.

Axis Rotation: When you are in Perspective mode, the amount of rotation about each axis (x, y, and z, respectively) appears at the top right of the Menu Bar.

Coordinates: When Coords (Prefs menu) is selected, the coordinates of the cursor position are displayed at the top right of the Menu Bar. See Coords, above. The coordinates are superseded by the Axis Rotation information when in Perspective mode.

Memory Availability: Press CTRL and a at the same time for the following information, reading left to right: Fast memory/Chip memory. See Appendix A for information on DeluxePaint's memory usage.

APPENDICES





NOTES

If you're running **DeluxePaint III** on a machine with 1 megabyte of RAM, 282K is allocated to the program and 100K to Intuition, leaving about 600K free. But this doesn't take account of the memory required to create the display, so you'll generally have a little less memory available as you work. For example, the default screen format (320 x 200 by 32 color display) uses 40K of memory, which leaves you with about 560K to work with. In addition, each external disk drive uses an extra 20K. You can measure available memory by selecting **About** from the Picture menu (or by pressing **CTRL a**) any time you need a memory check. **DeluxePaint** will warn you when you have insufficient memory to accomplish a task, or when you run the risk of losing data.

Memory shortage can manifest itself in various ways. For example, if you are at the limits of available memory and you select a large brush, **DeluxePaint** conserves memory by displaying just the outline of the brush, rather than the brush itself. When you paint with the brush the image will appear on the screen in the normal fashion, even though it may not be visible as you move the brush around the screen. When this happens, consider it a sign that available memory is low. In that case, you should take some action to reallocate memory (for example, by deleting the spare page or by removing any stencils, see below), or at least to save your current image or animation to disk.

Here are some of the ways **DeluxePaint III** consumes memory:

- Increasing the amount of change in an animation **after** you've allocated frames for animation (see below for further discussion).
- Creating and holding a large brush. When you see just the outline of the brush this is a sign that you are near the edge of your memory limits.
- Creating and holding a large Animbrush.
- When your spare page is active it uses up as much memory as the first page even if you cleared the image from it. You can regain the memory used by the spare page (40K or more) by selecting **Delete This Page**, while viewing the spare page, from the **Picture Menu**.
- You use memory by leaving the WorkBench open while you work **DeluxePaint**. The WorkBench can be opened and closed through the **Prefs** menu.



- Creating a stencil uses up one bit plane. The exact amount of memory used depends on the screen format and page size you've selected. Fixing the background has a much larger overhead, similar to that required by a spare page.

Other things that require memory are loading the disk directory, loading the system fonts, and creating a fill pattern from a brush.

ANIMATION AND MEMORY MANAGEMENT

You've probably discovered that animation requires a lot of memory. And the two animation modes, expanded and compressed, have different memory requirements.

The expanded mode of animation requires that there be enough memory to duplicate the entire screen for every frame. So if you are in 320x200 32 colors, which takes 40K per screen, you'll need 800K to get 20 frames.

Memory requirements for animation in the compressed mode is based on the difference between each animation frame. The more a frame is different from the one before it, the more memory will be needed to store it in memory and on the disk. The frame that requires the minimum amount of memory is simply a copy of the frame before it. The maximum amount of memory is required when every pixel in a frame is a different color than in the frame before it.

It's possible to set the number of frames to a large number and then, in the course of painting on the different frames, run out of memory. What is happening is that you are increasing the amount that the frames differ from each other. When this happens you'll see a message that explains that you don't have enough memory to save the changes you're making.

WHAT TO DO WHEN YOU RUN OUT OF MEMORY

Eventually everyone gets in a situation when they run out of memory. The first thing you should do when you get messages saying "Not enough memory" is to save your work. The following is a list of things you can do to get a little more memory to finish your work.

- Close the Workbench.
 - Delete your Spare page.
 - Delete your custom brush by selecting a very small custom brush.
 - Free your Animbrush through the Free command in the animbrush sub menu.
 - Free the Stencil.
 - Delete some frames if you have an animation.
 - Reduce your Page Size if it is larger than the screen.
- ❖ *Note* If you receive the System Message "Not enough memory for requested page size" when you try to change the **DeluxePaint III** screen format from Hi-Res, 16 colors to Hi-Res, 16 colors, Overscan, you may be experiencing memory fragmentation. To solve this problem, either reset the screen format from the Picture menu (use the option **Screen Format** and click OK when you've set the Choose Screen Format requester), or quit the program and restart **DeluxePaint III** in Hi-Res, 16 colors, Overscan mode.



NOTES



BRUSH COMMANDS

F1	Matte
F2	Color
F3	Replc
F4	Smear
F5	Shade
F6	Blend
F7	Cycle
F8	Smooth
-	Brush smaller
=, +	Brush larger
Z	Stretch
h	Halve
H	Double
x	Flip horizontal
y	Flip vertical
z	90 degree rotate
X	Double horizontal
Y	Dcuble vertical
Alt-s	Center brush handle
Alt-x	Flip brush handle horizontal
Alt-y	Flip brush handle vertical
Alt-z	Place brush handle



TOOLBOX COMMANDS

b	Brush Selector
B	Restore last custom brush/anim brush
c	Unfilled Circle
C	Filled Circle
Alt-C	Filled and Outlined Circle
d	Continuous Freehand
D	Filled Freehand
e	Unfilled Ellipse
E	Filled Ellipse
f	Fill
F	Fill requester
g	Grid on/off
G	Grid on/off using current brush handle position as a grid point
K	CLR (clear screen)
m	Magnify on/off
p	Color Palette requester
q	Curve
r	Unfilled Rectangle
R	Filled Rectangle
Alt-R	Filled and Outlined Rectangle
s	Dotted Freehand
t	Text
u	Undo
v	Straight Line
>	Increase magnification
<	Decrease magnification
,	PICK color cursor
.	One-pixel brush, Dotted Line
[,]	Change foreground color
{,}	Change background color
/	Toggle Symmetry on/off

SPECIAL KEYS

?	Display About/memory info box
Delete	Cursor arrow on/off
F9	Menu Bar on/off
F10	Toolbox & Menu Bar on/off
Right Alt-Amiga	Right Mouse Button
Left Alt-Amiga	Left Mouse Button
Cursor keys	Scroll Page (except in text mode)
Ctrl Cursor Keys	Adjust Screen positioning
n	Centers area under the cursor
Shift	Constrain cursor
Ctrl	Leave traces with line or shape tools
Ctrl a	Memory check
Tab	Color Cycle on/off
S	Show page
~ (Tilde)	Make Stencil
' (Grave)	Stencil on/off
a	Again key - repeats last menu command
	Coords on/off
Spacebar	Cancel operation in progress
Esc	Stop operation in progress
j	Spare page
J	Copy to Spare



PERSPECTIVE KEYBOARD COMMANDS

Enter:	Enter perspective mode
Keypad 7 and 8:	Rotate about the x-axis
Shift Keypad 7 and 8:	Rotate x-axis by Angle Step
Keypad 9:	Reset x-axis to 0°
Keypad 4 and 5:	Rotate about the y-axis
Shift Keypad 4 and 5:	Rotate y-axis by Angle Step
Keypad 6:	Reset y-axis to 0°
Keypad 1 and 2:	Rotate about the z-axis
Shift Keypad 1 and 2:	Rotate z-axis by Angle Step
Keypad 3:	Reset z-axis to 0°
Keypad 0	Reset all axes to 0°
Shift Keypad 0	Reset all axes, positions, and settings
Shift Keypad 9:	Fix x-axis
Shift Keypad 6:	Fix y-axis
Shift Keypad 3:	Fix z-axis
Keypad "-" (Minus):	Fill the screen with the current brush at the current perspective
Keypad "." (Period):	Reset Center
; and ' keys:	Moves the brush along its fixed axis in a direction perpendicular to its plane
Shift ; and ' keys (: and "):	Same as ; and ' keys but with greater increment
< (Shift ,) and > (Shift .):	Modify observer distance from screen
Ctrl	Temporarily fixes the y-axis so you can move your brush on the x and z coordinates
\	Toggle Angle/Position display

ANIMATION KEYS

1	Step to Previous Frame
2	Step to Next Frame
3	Display the Go To Frame requester to jump directly to a specific frame
4	Play Animation continuously until Spacebar or mouse button is pressed
5	Play animation once
6	Play animation in ping-pong mode
7	Step to previous animbrush cel
8	Step to next animbrush cel
Shift 1	Go to first frame
Shift 2	Go to last frame
Shift 3	Go to last frame you did a "go to" to
Shift 4	Play animation continuously in reverse direction
Shift 5	Play animation sequence once in reverse direction
Shift 7	Go to first animbrush cel
Shift 8	Go to last animbrush cel
Space bar	Stop the currently playing animation sequence
r	Reverses animation sequence while playing
Left Amiga	Held down while painting, turns on animpainting mode
Left Arrow	Slows down animation while playing
Right Arrow	Speeds up animation while playing





NOTES



The Player utility on the Animation disk lets you play the animations you created with DeluxePaint III. You can boot the utility from the Workbench or use CLI arguments to start the Player.

From the Workbench, open the Animation disk and click on the Play icon. This loads the program in the default screen format (lo-res, 320 x 200, with 32 colors). The screen is black and the menu bar is not displayed. To see the program's single menu, move the pointer to the upper left part of the screen and press down on the right mouse button. **Animate** appears in the menu bar, and the menu options, **Load**, **Play**, **About**, and **Quit** appear below the title.

You're now in the "interactive" mode. Choose **Load** and when the Load Anim requester appears, specify which drive you want to make active (df1: or df0:) and then load a picture or anim from the directory of the drive you chose. When you click Load in the requester, the utility automatically plays the highlighted file. Choose **Play** to play a picture or anim you've already loaded, just as you would in DeluxePaint III.

After you've loaded an animation in memory, the Load Anim requester looks a little different when you choose **Load** again. The **Append** button appears in the requester. Click **Append** only if you want to add the picture or animation you're currently loading to the back end of the animation that's already in memory.

You can use the same keyboard commands you've used in DeluxePaint III while you view your animation.

KEY	EFFECT
Tab	Turns color cycling on/off
Left Arrow	Slows down play rate
Right Arrow	Speeds up play rate
r	Reverses play direction
Esc or Space bar	Stops plays
1	Go to previous frame
2	Go to next frame
4	Play the animation
5	Play once
6	Play ping-pong



To use Player from the CLI, open the CLI from the Workbench. On the command line type `PLAY`, *space bar*, and the filename of the picture or anim you want to load. If you want to show the anim for a certain number of seconds, press the *space bar* and type that number after the filename. If you would like to indicate that the number is a loop count instead of time in seconds, press the *space bar* again and type "loops". You're now ready to issue play commands for your animation (or you can press Return right now and your animation will play and take you back to the CLI when it's finished).

- ❖ **Note** If you type an @ before the filename in the first line, the following text string is the name of a script file from which commands are read. Script files are ASCII text files created with a text editor such as ED or MEMACS, both of which are included with Workbench 1.3.

Play Commands from CLI:

Command	Meaning
<code>play</code>	Run the interactive Player
<code>play pict__ or__ anim</code>	Load <code>pict__ or__ anim</code> , interactive
<code>play pict__ or__ anim 10</code>	Load <code>pict__ or__ anim</code> : show for 10 seconds, then exit
<code>play foo 20 seconds</code>	Load <code>foo</code> : show for 20 seconds, then exit
<code>play anim 20 loops</code>	Load <code>anim</code> : play 20 loops, then exit
<code>play @test</code>	Read commands from script file "test"

The script commands, one per line, are similar to the CLI commands except that the word "play" is omitted.

Command	Meaning
<code>pict__ or__ anim 5</code>	Display <code>pict__ or__ anim</code> for 5 seconds
<code>anim 10 loops</code>	Display <code>anim</code> for 10 loops
<code>anim</code>	Play <code>anim</code> until user hits key
<code>pict</code>	Display <code>pict</code> until user hits key

If you hit the Space bar or click the left mouse button while a picture or anim is running, the program will move to the next command, even if the specified play-time has not elapsed.

File names with blanks must be enclosed in quotation (" ") marks.

A command line starting with a ; (semicolon) is skipped.



NOTES



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